TWISTED INK:

COMPARING TATTOOED AND NON-TATTOOED LIFE COURSE DEVIANCE

A Thesis

by

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ABSTRACT

This study aims to provide greater understanding of the relationship between tattoos and deviance. Historically, tattoos have been associated as markers of deviance, but with increasing popularity in modern-day society. I ask, does the acquisition of a tattoo have an effect on changes in deviant behavior? Longitudinal effects of tattoo acquisition on changes in deviant behavior participation are analyzed from the perspective of labeling and identity theories. Changes in deviant behavior participation are evaluated after tattoo acquisition among a large-scale representative national sample of young adults using The National Longitudinal Study of Adolescent to Adult Health. Results of survey adjusted multivariate regression analyses indicate a largely nonsignificant difference between tattooed and non-tattooed individuals in terms of changes in deviant behavior participation, net of multiple control variables. Tattoo acquisition does not influence changes in deviant behavior during adolescence in the 12 months following acquisition. In the results of the analyses of changes in deviant behavior over the life course to young adulthood, tattooed and non-tattooed males show similarities in their deviant behavior. However, increases in life course violent deviant behavior specifically occurred in tattooed females compared to non-tattooed females. A combination of labeling and identity theories are applied to these findings in discussing possible theoretical implications. These results suggest that widespread acceptance and popularity of tattooing among the mainstream population of the United States has largely diminished the deviant stigma associated with becoming tattooed.

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INTRODUCTION

When considering the prospect of studying deviant behavior among tattooed individuals, I initially thought like many students of my cohort, that stereotype of the deviant tattooed person had been outdated and replaced by mainstream acceptance. After all, an increasing number of people both in the U.S. and worldwide are acquiring tattoos (Stuppy, Armstrong, and Casal-Ariet 1998; Gardyn and Whelan 2001; Anastasia 2009) making it one of the fastest growing retail business in the U.S. (Lord and Lehmann-Haupt 1997). The tattoo industry is so popular that $2.3 billion industry was rated in 2010 as the seventh most recession-proof industries, likely because it offers a product that stands the test of time better than most (Kennedy 2010). More Americans under the age of 40 have at least one tattoo (approximately 36% to 40%) than use Instagram (17%), Twitter (18%), Pinterest (21%), LinkedIn (22%), or even use mobile social networking on a typical day (28%) (Taylor and Keeter 2010). Yet, a simple Google search of "deviant behavior and tattoos" produced a news article purporting that "heavily tattooed students are more prone to deviant behavior" (Baklinski 2010), an article that was repeated in many news outlets including NBC (Beck 2010) and the Chicago Tribune (Johnson 2010). The study presented in these articles (Koch, Roberts, Armstrong, and Owen 2010) indicated that "heavily tattooed" meant students with four or more tattoos and "deviant behavior" consisted of regularly using marijuana, occasionally using other drugs, having been arrested even just once, binge drinking, and having had multiple sex partners.

Bekhor, Bekhor, and Gandrabur (1995) found that employers are 70% less likely to hire an individual that has a tattoo regardless of whether or not the tattoo is visible. Other research devoid of pictures or descriptions regarding the nature of any specific tattoo also found people described as tattooed are associated with more negative personality traits than their non-tattooed counterparts (Stuppy, Armstrong, and Casal-Ariet 1998; Hawkes, Senn, and Thron 2004). This shows a cognitive predisposition towards a negative connotation for those who are tattooed. Interestingly, a British police chairman has called for the ban of tattoos on police officers to be lifted because it can bridge the gap between officers and the general public (Strohecker 2012). The implication is police who display tattoos will bridge the gap between a population research shows to be considered to be deviant – a group of people in which police are likely most interested. So, it seems that the negative stereotypes surrounding tattooed people are still active.

Deviance as a response to stress or as a stressor itself is important in longitudinal research pertaining to adolescents and has important implications for future achievements (Hagan and Foster 2003). The portrayal of a personal narrative is sometimes indicated as motivation for tattoo acquisition serving as a form of catharsis or self-healing (Wohlrab, Stahl, and Kappeler 2007). Individuals who have been victimized sometimes use tattooing as a way to reclaim the body (Atkinson 2002) and are more likely to become tattooed as a form of protection (Silver, VanEseltine, and Silver 2009). However, tattooing can also have subsequent stigmatizing effects on individuals, especially adolescents, resulting in additional deviant behavior (Goffman

1963; Carroll, Riffenburgh, Roberts, and Myhre 2002; Roberts and Ryan 2002). As such, it is important to analyze the longitudinal influence of tattooing on deviant behavior.

The scope of this study is to determine whether adolescents who acquire tattoos display more deviant behavior through the life course than their non-tattooed counterparts. Using the public use version of the National Longitudinal Study of Adolescent to Adult Health I will examine the change in respondent's deviant behavior from Wave I of the study, conducted when the participants aged 11 to 21, through the time of Wave IV of the study when participants were aged 24 to 33. Contrary to the popular perception of deviance around tattooed individuals, I expect to find respondent's participation in deviant behavior will be unrelated to the acquisition of a tattoo. That is to say, adolescents reporting having a tattoo at Wave I will participate similarly in deviance to their non-tattooed counterparts. Additionally, people will inevitably change their participation in deviant behavior over the course of their life, but I hypothesize the change in the level of their deviant participation is unrelated to their acquisition of a tattoo.

PREVIOUS LITERATURE

Emergence of the Tattooed Deviant

The history of tattoos in the developed West begins in Polynesia with the exploration of Captain James Cook, sailing for the Royal Navy, along with other European explorers who sailed the same area (Buck 1950; Caplan 2000; DeMello 2000; Atkinson 2003; Burgess and Clark 2010). This was not the first time that Europeans had encountered the tattooed "Other." The Roman Empire encountered heavily tattooed Celtic warriors, and Christopher Columbus wrote about "pagan natives" who exhibited extensive tattooing. However, Cook's explorations are the first to document the extensiveness and pervasiveness of tattoos, and the first to be mutually influential in the dissemination of the practice of tattooing (Atkinson 2003). In their explorations beginning in 1769, Captain Cook's men found the Polynesian people to have tattoos and began getting tattooed themselves by the native people at least as early as 1784, often with designs of animals and plants. This practice of being tattooed by the native people became popular among other sailors who explored the Polynesian area. The Polynesian people were equally influenced by Captain Cook's men and other explorers, introducing designs of rifles and canons that began to appear on the natives (DeMello 2000). The Māori used Tā moko, a form of tattooing that used a wooden chisel to carve the skin, for a variety of reasons including protection and genealogy (Buck 1950). The Māori, influenced by James Cook and his men, began to use metal instruments in the application of tattoos (DeMello 2000). Most high-ranking Māori received tattoos seen as a rite of passage from childhood to adulthood, along with marking different rituals

and rites. Tā moko were usually placed in highly visible areas of the body as they were seen as a point of pride and attractive to the opposite sex. Those Māori that did not have Tā moko were seen as lower class (Buck 1950). Through further explorations, different designs and styles were exposed to the people of different islands, and each culture's form of tattooing began to transition. The Māori, who began to participate in a heads-for-guns exchange, began to display designs featuring firearms. For the Māori, along with the Polynesians who had previously been introduced to guns, the practice of tattooing for protection transitioned to a mostly decorative affair (DeMello 2000).

European explorers began to bring heavily tattooed native people from the Polynesian Islands back to England to be displayed as oddities in bars and dime museums. They were also used in World fairs as a comparison to the civilized West, thereby solidifying the image of the tattooed savage (Caplan 2000; Burgess and Clark 2010). Paradoxically, the solidification of the tattooed savage occurs simultaneously with increased popularity of tattoos among sailors. The display of tattoo savages contrasting the civilization of the West did not begin to be displayed in the United States until the World Fair of 1876. Also in the 1800s, carnival and freak show attractions began to arise in the United States featuring mostly white men and women describing extraordinary tales related to the attainment of their tattoos, usually integrating the savagery and brutality of both domestic and international indigenous people. These freak shows began to descend in their popularity and were all but extinct by the mid-1900s (DeMello 2000).

The first known tattoo shop in the United States was established in 1846 by Martin Hildebrandt, who tattooed primarily servicemen – not only sailors but also soldiers on both sides of the Civil War. It was during this time period that the Aristocracy also began to acquire tattoos, a practice that lasted until World War I and included notable leaders such as King Edward VII, King George V, Winston Churchill, Czar Nicholas II, Theodor and Franklin Roosevelt, and Andrew Jackson. The introduction of the electric tattoo machine in 1891 played a large part in the gradual decrease of tattoo consumption among aristocrats (DeMello 2000). The electric tattoo machine made tattooing cheaper and less painful which led to the adaptation of tattooing by the lower class and began to be seen as primitive and associated with the lower rungs of society (Burgess and Clark 2010). Mid-century tattoo shops were frequented by "sailors, carnies, drunks, laborers, and young boys who hoped to learn the [very masculine] trade" (DeMello 2000:59).

The time between World War I and World War II is widely considered the golden age of tattoos. Tattoos at this time symbolized patriotism and were synonymous with men in the military. DeMello (2000) notes that men who had tattoos were automatically thought to be associated with the military (either past or present). Tattoos were also extremely popular among working-class men and saw the rise in popularity of anchors, roses with the emerging head of a woman, and "mom," as well as wives' or girlfriend's names. Additionally, parents had their children tattooed with their identity, people began getting their recently issued social security numbers tattooed, and the United States government urged people to tattoo their blood type in case of an

impending attack. The golden age of tattooing came to an end with the fifties because the price of tattoos had dramatically risen, the culture of the military was changing, and tattoo popularity simply decreased.

The sixties and seventies spawned the birth of the "tattooed rebel." In the late fifties and early sixties, the health department began to regulate the tattoo industry and some state governments ban the practice altogether, mostly due to outbreaks of hepatitis from unsanitary tattooing conditions. Although the popularity of tattoos among military men further decreased, working-class men continued to get tattooed in parlors. It was during this time that the biker tattoo and the Chicano and prison tattoo took shape. The acquisition of tattoos became symbolic of rebellion, synonymous with bikers, hippies, and later punks. Scholarly articles linking tattoos to deviance and criminal behavior by the lower working-class began to be published (which were largely based on tattooed prison populations) establishing the modern negative stigmatization associated with tattoos (DeMello 2000; Pritchard 2001; Atkinson 2003).

At the same time tattoos were being stigmatized as undesirable, certain tattoo artists were being influenced by a new form of tattoo, the Japanese tattoo, and began refining their skills. The sixties and seventies marked the entrance of Sailor Jerry, Ed Hardy, and other influential artists into mainstream tattooing. Sailor Jerry was the main artist to import the Japanese tattoo style, using color and shading while viewing the entire body as a canvas rather than just certain key areas. This style was introduced by Sailor Jerry to Ed Hardy who began to incorporate other influences into his work. In addition to the influence of Japanese tattooing, tattoo artists in this era were highly

influential in each other's styles and designs. The artists saw the unique skill set of using fine lines to obtain greater detail in art that was used in Chicano and prison tattooing. These artists did not limit themselves to being influenced only by other tattoo designs, but some went to art school, while others were art enthusiasts, and some were even able to secure gallery showings for their work (DeMello 2000; Irwin 2003). It was Hardy who introduced *Tattoo Time*, a magazine geared for the middle class. Hardy, along with some others also reinvented the tattoo expo, giving it a more educational twist and exposing the industry to new clientele (DeMello 2000). This time period is known as the beginning of the Tattoo Renaissance, which marked a significant increase in the popularity and quality of work. Women began entering tattoo shops, not just to watch their male companion get tattooed, but to get tattooed themselves. With many states lifting their ban on tattooing in the mid- to late-1990s (Oklahoma did not lift its ban until 2006), combined with the exposure provided by the tattoo renaissance, mainstream tattooing exploded in popularity with a large proportion of the population getting tattoos, garnering an estimated 36% of the 18 to 29 year old population having acquired a tattoo by 2006 (Anastasia 2009) and nearly 40% of Americans under age 40 by 2010 (Taylor and Keeter 2010).

Perception of Tattooed Individuals

The tattoo industry is one of the fastest growing industries (Lord and Lehmann-Haupt 1997), positioning the 2.3 billion dollar business as the seventh most recession-proof industry (Kennedy 2010) partially due to the longevity of its products. The tattoo industry, analogous to the cosmetic surgery industry, started out stigmatized by the

general public as physically, socially, and morally tainted (Goffman 1963). Both industries benefited from increased social acceptance and social focus on beauty. Unlike the tattoo industry, the cosmetic surgery industry has legitimized its existence through hierarchical professional associations, unified standardization, and institutionalization within the medical field. To a certain degree, the tattoo industry has associated itself with medicine in its criticisms, sterilization process, and discussions of aftercare minimizing infections and spread of blood-borne pathogens, but not to the extent of cosmetic surgery. Additionally, while the cosmetic surgery benefited from a collective efforts to shake its initial stigma, it is not surprising that the tattoo industry, occupied by professionals and clientele valuing individuality, have not been able to form a collective anti-stigmatizing effort (Adams 2012). Nevertheless, the tattoo renaissance served to broaden the appeal of tattooing to a wide variety of demographics, increasing industry growth substantially (DeMello 1995; Adams 2009).

While increasing numbers of American's report having a tattoo – nearly 40% under the age of 40 in 2013 (Taylor and Keeter 2010) and are increasingly consumed by well-educated, middle class individuals (Forbes 2001; Koch et al. 2010), even more American's (67%) report disapproval of the practice continuing to associate it with rebellion (Gardyn and Whelan 2001), a phenomenon more commonly prevalent among non-tattooed individuals (Forbes 2001). Paradoxically, increased consumption among well-educated middle class Americans has not influenced the acceptance among this group of individuals (Adams 2009). Individuals acquiring tattoos were not naïve regarding public perceptions of tattoos indicating career trajectories as influential in both

placement and overall visibility of tattoos recognizing the non-normative aspect of tattoos in the workplace (Atkinson 2003) with 85% agreeing visible tattoos and piercing "Should realize that this form of self-expression is likely to create obstacles in their career or personal relationships" and 72% agree with discrimination practices by employers restricting visible tattoos and piercings (Gardyn and Whelan 2001), but the results vary by age as younger individuals are more tolerant, holding more positive attitudes regarding tattoos (Rooks, Roberts, and Scheltema 2000; Gardyn and Whelan 2001).

Koziel, Kretschmer, and Pawlowski (2010) suggest an association between tattoo acquisition and biological quality. Koziel et al. recruited 64 males and 52 females from Polish tattoo parlors for their test group and 38 males and 48 females enrolled in various courses at a Polish university for the control group. Comparing the body fluctuating asymmetry - a good measurement of developmental stability (Palmer 1994) - of individuals with tattoos to those without, the authors found support for this hypothesis only among their male participants. Using a representative sample of adolescents from an Italian island, the association between tattoos or piercings and eating disorders was evaluated (Preti, Pinna, Nocco, Mulliri, Pilia, Petretto, and Masala 2006). Finding only modest support for the relationship between eating disorders and tattoos or piercings, the authors conclude that tattoos should be seen as an expression of identity rather than an indicator of psychological issues. Some researchers have linked the lifestyle of tattooed adolescents to higher risk-taking behavior related to sexual experience, drug use, alcohol consumption, violence, and suicide (Roberts and Ryan 2002; Carroll and Anderson

2002; Carroll, Riffenburgh, Roberts, and Myhre 2002; Oliveira, Matos, Martins, and Araujo 2006; Guéguen 2012). These findings have lead researchers to encourage screening for tattoo acquisition as a warning signal to clinically label tattooed adolescents as having a higher propensity for risk-taking behaviors and promote preventative measures (Roberts and Ryan 2002; Carroll, Riffenburgh, Roberts, and Myhre 2002; Oliveira, Matos, Martins, and Araujo 2006).

Healthcare professionals have been found to possess more negative attitudes and correspondingly provide negative feedback towards tattooed individuals and consequently may provide less quality care (Armstrong 1991; Stuppy, Armstrong, and Casal-Ariet 1998). In one study of 137 professional women who had been tattooed for at least six months, the women reported receiving negative feedback from fathers, healthcare personnel, and the general public, but strong support from significant others and friends and mild support from mothers, siblings, and children (Armstrong 1991). In a study completed sixteen years later (Swami and Furnham 2007) tattooed women were found by 84 female and 76 male undergraduates to be less attractive, heavier drinkers, and more sexually promiscuous.

Seiter and Hatch (2005) compared the credibility and attractiveness of tattooed males and females to their non-tattooed counterparts by issuing four questionnaires to undergraduate students at a large university measuring several dimensions. Regardless of gender, tattooed individuals were perceived as lower on competence, character, and sociability, and higher on extroversion. Adding to the literature on attractiveness, using high school and college students responding to a similar survey measuring only female

attractiveness, Degelman and Price (2002) found non-tattooed women were rated significantly more attractive, intelligent, artistic, athletic, motivated, generous, mysterious, religious, and honest. A replication of Degelman and Price's study revealed women without visible tattoos were found to be more fashionable, more athletic, more attractive, more caring, more intelligent, less creative, more honest, and more religious (Resenhoeft, Villa, and Wiseman 2008).

Adolescents who desire a tattoo will inevitably acquire one, viewing them as expressions of self-identity despite the "tattoos-as-deviance" perception of parents and older Americans (Armstrong and Pace Murphy 1997; Gardyn and Whelan 2001). The myth that most people get their tattoos impulsively or while intoxicated and regret (or will regret) their tattoos (Armstrong, Roberts, Koch, Saunders, Owen, and Anderson 2008) have been dispelled by several studies. Forbes (2001) and Armstrong and Pace Murphy (1997) found that few of participants reported using drugs or alcohol prior to tattoo acquisition. This is likely because in modern day tattooing, not only do federal health codes prohibit artists from tattooing intoxicated individuals, but many artists refuse to tattoo intoxicated individuals because alcohol thins the blood causing complications in healing, consequently effecting the quality of the artwork and by association the reputation of the artist. Additionally, most tattooed individuals reported considering their tattoo for at least a month before getting it completed (Armstrong 1991; Forbes 2001). Rather, a more nuanced evaluation reveals narratives associating tattoo regret with changing symbolic representations of the tattooed images. For example, a tattoo of the Boston Tea Party acquired as a symbol of liberal support of

nonviolent protest against globalization, is now widely associated with symbolic representation of the ultra-conservative Tea Party movement (Madfis and Arford 2013).

Several studies (Forbes 2001; Carroll, Riffenburgh, Roberts, and Myhre 2002; Roberts and Ryan 2002) have suggested that people with tattoos are more likely to engage in risky behavior, while others (Nowosielski, Sipinski, Kuczerawy, Kozłowska-Rup, and Skrzypulec-Plinta 2012; Manuel and Sheehan 2007) report no difference between tattooed and non-tattooed individuals in regards to behaviors or attitudes toward risk taking activities.

Koch et al. (2010, 2005) report early sexual activity and increased number of sexual partners among more heavily tattooed individuals. Comparing tattooed, pierced, and control groups, Nowosielski, Sipinski, Kuczerawy, Kozlowska-Rup, and Skrzypulec-Plinta (2012) confirm this finding, adding tattooed (and pierced) individuals report greater frequency of sexual activity, oral and anal sex as the dominant form of sexual activity, and the use of alternate places (other than bedroom) for sexual activity more often. Conversely, Nowosielski et al. found no significant differences between tattooed, pierced, and non-modified individuals in sexual orientation, sexual preference, experiencing sexual abuse, frequency of masturbation, or, most importantly, risk-taking sexual behavior. In a convenience sample collected from a variety of locations in a college town located in Germany tattooed and non-tattooed individuals did not differ in subculture membership, relationship status, sexual orientation, uncommon sexual activities, and had only slight differences in education and age (Wohlrab, Stahl, Rammsayer, and Kappeler 2007). The two samples also did not differ in four of the Big

Five personality traits with tattooed individuals scoring lower in agreeableness, likely resulting from the display of nonconformist behavior. The most significant difference found between tattooed and non-tattooed individuals was that tattooed individuals scored higher in sensation seeking and had less restrictive sexual strategy, meaning they are more promiscuous with short term mating goals.

Additionally, more heavily tattooed college students, characterized as those with four or more tattoos despite more than half of tattooed Americans report having two to five tattoos and 18% have six or more (Taylor and Keeter 2010), were more likely to regularly use marijuana, occasionally use other recreational drugs, cheat on college work, have been arrested at least once, and binge drink (Koch et al. 2010). Adams (2009) found the greatest association with having a tattoo, especially "extra stigmatizing" tattoos – tattoos on the face, neck, or hands – was time spent in jail. Roberts and Ryan (2002) and Forbes (2001), also found that college students with tattoos and piercings exhibit greater use of alcohol and marijuana, but Forbes attributes this, along with tattooed adolescents experiencing increased anger from parents, to individual's lack of conformity to societal norms and expectations whereas Roberts and Ryan suggest tattoo acquisition to be a warning sign to practitioners of risk-taking behavior.

Despite the findings of Koch et al. (2010), Forbes (2001), and Roberts and Ryan (2002), other studies (Adams 2009) found no significant association between the level of alcohol consumption and those with tattoos, regardless of the visibility of the tattoos, but does find significantly greater use of recreational drugs among the tattooed, especially

those with "extra-stigmatizing" tattoos. Additional empirical testing by Guéguen (2012) adds to the complexity of conclusions regarding substance consumption among the tattooed. Individuals leaving a bar on four different Saturday nights in an area of France well known for alcohol consumption issues among young adults were asked their extent of tattoo acquisition and piercing adornment. Participants were then asked to blow in a breathalyzer to measure blood alcohol level. Guéguen found that pierced individuals and individuals reporting being both tattooed and pierced consumed more alcohol in bars on a Saturday night than their body art absent counterparts, regardless of gender. Those with both tattoos and piercings more heavily consumed alcohol than only pierced or only tattooed individuals. However, there were no significant differences between tattooed individuals reporting no piercings and their non-tattooed non-pierced counterparts, regardless of gender.

While these findings provide some insight into the complex association of tattoos and substance use, it illuminates the possibility that adolescents, who increasingly participate in multiple forms of body art, rather than just a single exhibition, may increasingly consume greater amounts of drugs and alcohol. Additionally, the cross-sectional nature of these studies does not provide insight into the long-term effects associated with the possible stigmatization of acquiring a tattoo.

Previous studies using street gangs, incarcerated felons, the mentally ill, and other subcultural groups (DeMello 1995) indicate significantly negative perceptions of the tattooed by the non-tattooed in "almost every aspect" (Forbes 2001). Conversely, many past studies have demonstrated the absence of negative characteristics typically

associated with tattoos (Armstrong 1991; Armstrong and Pace Murphy 1997; DeMello 2000; Rooks, Roberts, and Scheltema 2000). With the occasional exception of risk-taking behavior and lack of conforming to conventional social norms, tattooed individuals do not differ from non-tattooed individuals in their personality characteristics, family structure, community of origin size, quantity of friends, family stability, body image, and did not feel unloved as children (Forbes 2001; Wohlrab, Stahl, Rammsayer, and Kappeler 2007). Irrespective of previous literature illustrating the complexity of association between tattoo acquisition and deviant behavior, negative stereotypes, and stigmatization, societal perceptions of tattooed individuals has a significant impact on employment aspirations and challenges.

Employment Implications

Research by Dean (2011) suggests that consumers have less confidence in the ability of people with visible tattoos (arm sleeves in this case) in white collar positions to perform a service and even when results of this service meet or exceed expectations, are less likely to be recommended by consumers. In this study, a tax preparer is described to participants as having long hair and wearing a t-shirt that exposed a tattoo sleeve on both arms or as wearing a white long-sleeve shirt, wearing a tie, and have short hair. Respondents then read a variety of outcomes to their tax preparation. Dean also found that when consumer's expectations were exceeded, there was no significant difference in satisfaction between the tattooed and non-tattooed service provider. Additionally, when consumer's expectations were not met, there was no significant difference in satisfaction. This might suggest that consumers are more concerned with the outcome of

their experience than they are with the appearance of the individual providing that service.

Bekhor et al. surveyed 242 employees, separating them into 8 categories – retail, hospitality (hotels, restaurants, and fast-food), beauty (nail salons, beauty parlors, and hairdressers), private sector employers of office workers (banking, insurance, travel agencies), building industries (plumbing, electrical, building, and painting), motor industries (repair, sales, and rental), personal care (childcare, home help, nursing homes, and private hospitals), and the public sector. The respondents were then asked four questions. They are as follows: 1. "If you had two equally suitable job applicants, one with and one without a tattoo would this influence you? 2. Would you employ someone with a tattoo visible in normal work attire? 3. Do you employ anyone with a tattoo visible on hands, wrists, or forearms? 4. If you had an employee with a tattoo would you encourage removal?" They found employers in building, personal care, motor, and public sector industries had very few issues hiring individuals with tattoos.

Miller, McGlashan Nicols, and Eure (2009) surveyed 153 undergraduate students enrolled in business courses giving them four different version of a survey. In the survey Miller et al. present four different scenarios regarding working with someone with visible tattoos – working in a face-to-face sales environment vs. an inside sales position with no face-to-face contact with customers, and sharing rewards or individually earning rewards. They found that coworkers find it unacceptable to work with visibly tattooed people in a work setting that requires face-to-face interaction with customers regardless of whether rewards (commission or salary) are shared or

individually earned. However, when rewards are not shared and there is no face-to-face interaction with customers, Miller et al. found there to be no significance in coworker acceptability when working with a visibly tattooed person. For example, when there are multiple people waiting tables at a restaurant working for tips, and regardless of whether they share tips or keep their tips independent of one another, the workers do not approve of working with a visibly tattooed person. However, if that visibly tattooed person were in the back washing dishes, the wait staff would have fewer objections to working with the visibly tattooed person. This may help explain why employers are less likely to hire an individual with a tattoo in retail (70% less likely), beauty (73.3% less likely), hospitality (83.3% less likely), and in office sectors (70% less likely). This bias is even greater in industries that employ a majority of women, creating an even greater disadvantage for tattooed women (Bekhor, Bekhor, and Gandrabur 1995).

Miller et al. (2009) explain the reason for this is possibly that although young people claim to have no problems with tattoos, when given anonymity, their true prejudice surfaces indicating there is still a negative stigma attached to tattooed individuals. In contrast, an alternative explanation is that the young people surveyed were from a university in Texas and were aware of the negative stigma attached to tattooed individuals held by certain members of the community, especially in such a conservative state. Therefore, they find it unacceptable to work with a visibly tattooed person when face-to-face interaction is required with customers because of the perception some customers may have of their coworker. This is especially true when

rewards are shared, as in the example above, because a negative perception by customers may result in lower rewards (or tips).

Long-term Impact of Tattoos

Silver, VanEseltine, and Silver (2009), using the first two waves of the National Longitudinal Study of Adolescent to Adult Health (Add Health), have established that adolescent deviant behavior, weak social bonds, and negative self-appraisals, are significant predictors of future tattoo acquisition. Silver et al. found that adolescents at Wave I who drank alcohol, smoked marijuana, or participated in violent or nonviolent behavior were more likely to acquire a first tattoo by Wave II. Adolescents with stronger ties to school, including higher grade point averages, and religion, both likely facilitated through parental attachment, were less likely to acquire a first tattoo. Additionally, adolescents who experienced violent victimization, or who have negative self-appraisals or self-destructive behavior are more likely to acquire their first tattoo. Lastly, when analyzing all factors together, Silver et al. found that adolescents with lower grade point averages, lower religiosity, who drank alcohol, smoked marijuana, had been victimized by violence, engaged in violent deviance, were from lower socioeconomic families, or single-parent families were all more likely to acquire a first tattoo.

In contrast to the suggestions of others (Carroll and Anderson 2002; Carroll, Riffenburgh, Roberts, and Myhre 2002) in using tattoo acquisition as a warning sign of risk-taking behavior or further deviance, Silver, VanEseltine, and Silver (2009) provide some insight into predicting tattoo acquisition over a period of time through the use of

previous behavior. However, no literature to date has evaluated the longitudinal effects of tattoo acquisition on deviant behavior. This study aims to explore the lasting effects of tattooing on deviant behavior compared to short-term behaviors around the time of acquisition. Because females experience stigmatization associated with tattooing differently than males (Bekhor, Bekhor, and Gandrabur 1995; Brallier, Maguire, Smith, and Palm 2011) and have differences in predictors of deviance, elements of deviant coping, and factors impacting desistance (Daigle, Cullen, and Wright 2007; De Coster and Zito 2010; Craig and Foster 2013), the effects of tattooing on deviance will be tested by gender subgroups to provide more nuanced and accurate results.

THEORY

Social Reaction Perspective

Labeling theory, sometimes referred to as the societal reaction perspective (Grattet 2011), asserts that deviance is not defined inherently by the act itself, but rather is demarcated by the consequential application of rules and sanctions by actors located in a given social situation (Becker 1963). Categories of deviant individuals are not homogenous in composition, possessing common personality traits or life situations that account for their deviance, but rather their commonality exists in possessing the label of deviant. The degree to which an act is treated as deviant varies on the temporal context, who has committed the act, and who was harmed by the act. From the societal reaction perspective, deviance does not describe particular behavior while excluding others, but rather it is an interaction between an individual who commits an infraction and those who respond to it (Becker 1963) illustrating the conception of deviance as socially constructed. Public urination by a homeless individual, while in the presence of other homeless individuals will likely receive little to no reaction. An identical act by a female professor in the presence of her colleagues will undoubtedly produce a negative reaction resulting in social sanctions and the application of the deviant label. In addition to labeling by others, there are certain interactions that can trigger an individual to self-label even in the absence of negative feedback or prior labeling (Norris 2011). The negative effects associated with the labeling of an individual are dependent on that individual's reaction to becoming labeled (Link, Cullen, Struening, Shrout, and Dohrenwend 1989; Grattet 2011).

The social reaction perspective requires two conditions be met for an action or characteristic to be classified as deviant. First, an act or characteristic must first be known about or discovered for it to be considered deviant (Becker 1963). Acts or characteristics that are publicly apparent and unmistakable violations of norms are inherently discredited. Accordingly, acts or characteristics that are not publicly evident are not immediately subject to sanctioning, but are discreditable upon discovery (Goffman 1963). Because deviance is socially constructed, the discrediting, labeling, and subsequent stigmatization of an individual is subject to social reaction. An individual's acquisition of a tattoo can either be discovered through observation or verbal notification of the tattoo's existence. A tattoo does not need to be publicly visible to be considered deviant or undesirable – with no visual image, an imaginary individual thought to have a tattoo was found to be less desirable than one who is not tattooed (Bekhor, Bekhor, and Gandrabur 1995; Stuppy, Armstrong, and Casal-Ariet 1998; Hawkes, Senn, and Thron 2004). The second condition for an act to be deviant is the discoverer (audience) must consider the act a violation of expected rules and norms. This condition exemplifies the inherent dynamic nature involved in the classification of behavior as deviant and situates audience characteristics as being a central feature in determining other's reaction to an infraction (Becker 1963).

The actor, audience, and situational characteristics have important implications on the reaction of an observer to an infraction. The influence of an actor's characteristics depend on the behavior of the actor and are more relational in nature. Because labeling theory is largely based on the reaction of others, audience

characteristics are essential in determining how an infraction is reacted upon. Different groups prescribe to a variety of different norms, resulting in a wide range of reactions to certain types of behavior based on those norms. An act that one group reacts to and considers as deviant, may be perfectly acceptable, and even considered normal or encouraged by another group. Closely related to the variation in audience characteristics, the context of the social situation in which an act occurs also determines the reaction of others. Some acts are significantly more acceptable in a given social context than in others (Becker 1963).

Deviant labeling is not absolute in its application, but is reciprocal in nature. Just as labeling is subject to social reaction, acknowledgement and acceptance of the label is dependent on the actors' reactions to the label. Labeling by sources of illegitimate power and insignificant affective value, in relation to the actor, are likely inconsequential (Matsueda 1992; Asencio and Burke 2011). Alternatively, individuals in restrictive social situations in which available interaction partners are limited, supplant frequency over affective connections in the valuation of sources for legitimation (Stryker and Serpe 1982; Asencio 2011). Application of the deviant label from valued sources of legitimation may have important implications for one's self-concept, that is, meanings associated with a given identity (Bartusch and Matsueda 1996; Asencio and Burke 2011).

When an individual is labeled as deviant, he or she is placed into a stigmatized social status that differentiates him or her from others. The stigmatization of an individual links attributed negative labels of difference to undesirable characteristics

associated with an identity devalued in relation to dominantly held cultural beliefs. A stigmatized individual is placed into a distinct category of separation, creating unequal life chances through limited access to political, economic, and social capital, thereby restricting power to define differentness, construct norms, and apply sanctions (Goffman 1963; Link and Phelan 2001). A stigmatized social status locates the individual at a lower position on the hierarchy of societal statuses, defining the person as undesirable, inferior, and discredited thereby resulting in status loss and social discrimination (Goffman 1963; Becker 1963; Link and Phelan 2001; Grattet 2011). A loss in status begins a gradual process in which the individual's self-concept is altered. An individual with a stigmatized social status often incorporates the label into his or her identity due, in part, to the feedback the individual receives from others who treats the person as deviant (Goffman 1963; Link et al. 1989). Forced acknowledgement and acceptance of a stigmatized identity facilitates a loss of status, dramatically increasing the susceptibility of the self-concept to alteration, materializing through internalization of the deviant label (Becker 1963; Goffman 1963; Burke 1991; Stryker and Burke 2000).

While there are several reactions to becoming labeled, the permanence of tattoos make acceptance a particularly salient reaction. Incorporating a deviant label into one's identity can produce secondary deviance in which the labeled person openly and actively increases his or her deviant behavior to achieve congruence between identity and behavior (Lemert 1951). Increases in norm violation severity and frequency may result in social discrimination (Sampson and Laub 1993), further stigmatizing the individual, shaping future behavior (Sutherland 1947), and solidifying a persistent deviance

(Sampson and Laub 1997). Rejected relations with non-deviant peers and family may also result in the pursuit of acceptance from alternate sources in the form of subculture membership (Cohen 1955; Sampson and Laub 1993). The process, by which individuals increasingly participate in deviant behavior, can be further explained by a useful mechanism known as the identity control model.

Identity Control Theory

The cybernetic model of identity control, primarily a subconscious process, begins with the formation of an identity standard. The identity standard is a set of meanings associated with a particular role that is performed in a social situation (Burke 1991). Embedded within the social structure, identities are definitively associated with stable, socially collective meanings and behavioral expectations interpreted and internalized by the identity holder (Stryker 1980; Thoits 1992). The numerous internalized meanings, from which an identity is structured, are then stored in memory, functioning to characterize, shape, and define the associated identity. These internalized identity-relevant meanings are known as the identity standard (Burke 1991; Burke and Stets 2009).

Every individual possesses multiple identities for which there are multiple, sometimes overlapping, meanings related to each identity that are dependent on the social situation, but having multiple identities does not inherently preclude one from being involved in another. The social situation plays a critical role in shaping which meanings are relevant to an identity specific to situational cues (Stryker 1980; Stets 1995; Burke and Stets 2009). A professor, Julie, might understand her identity role to be

associated with expectations of being studious, mentoring others, holding high societal prestige, and intelligence, but at a year-end party for department faculty, Julie might understand her identity role expectations to involve cutting loose, relaxing, and drinking alcohol. Both identity roles involve being a professor, but the social situations are different so follows the meanings associated with being a professor. Activation of one identity does not prevent the simultaneous activation of another. Julie the professor might also have children at home, as such, the mother identity-role is likely more pronounced when interacting with her children. However, that is not to say that the role of professor is always irrelevant when interacting with her children and may gain more prominence when that social interaction involves helping the children with their homework. The meanings associated with each identity are formed by the identity holder's perception of the social situation.

The identity holder's perceptions of identity-relevant situational and behavioral cues produced in the social environment operate as inputs to the identity standard. In a social interaction, the objective (as far as identity is concerned) is for the self-relevant perceptions to be copasetic with the identity standard meanings (Burke 1991). Known only to the perceiver, perceptions of identity-relevant inputs include continuous perceptions of one's own behavior, other's reactions to that behavior, and situational cues. It is impossible to intuitively know other's perceptions, but verbal and nonverbal reactions provide interpretive cues (Burke and Stets 2009). When interacting with another professor at the year-end faculty party, Julie is the only person who knows how she is perceiving the verbal and non-verbal behavior of her interaction partner, but

Julie's reactions to these cues provide insight into her perceptions. Since people cannot effectively control what others think or do, they attempt to control their own interpretation of other's perceptions. Cooley's (1902) looking glass self is one's self-image, derived from the reflexive interpretation of other's perceptions to that presentation of self-image. Building on Mead's (1934) conception of the self and incorporating the perspective of Cooley, reflected appraisals are self-estimations from the perspective of other's regarding the assessment of identity-relevant meanings - how an individual sees his or her self through the eyes of another (Matsueda 1992). Partner produced reflected appraisals, combined with situational cues, encompass the composited information inputted to the identity standard (Burke and Stets 2009). The application and internalization of labeling materializes in the reception of reflected appraisals facilitating stigmatization through the cybernetic identity control loop. Inputs from the social environment are subsequently evaluated by the comparator.

The comparator, a comparison performing mechanism, evaluates the congruence between environmental social inputs and the identity standard, producing an error signal indicating the extent and direction of incongruence. The comparator produced error signal and its direction structures affective responses and subsequent interaction addressing incongruences (if present) through behavioral output (Burke 1991; Burke and Stets 2009; Stets and Burke 2014). High levels of incongruence, either through overvaluation or undervaluation, can produce a host of negative affective responses including anger and distress (Stryker and Burke 2000; Burke and Stets 2009).

Accordingly, behavioral outputs are contoured to alleviate the level of incongruence to a manageable state

When the meanings associated with an individual's identity standard are inconsistent with received input, identity verification is inhibited resulting in the person's identity becoming strained (Burke 1991, Stryker and Burke 2000). A key element of the behavioral output is to remember the behavior must be relevant to the meanings associated with their identity standard – the behavior itself is not important but rather the meanings and symbols associated with the behavior (Burke and Stets 2009). Large incongruences between the identity standard and input increases an individual's attention to the identity process converting it into a conscious mechanism, generating heightened motivation for the individual to resolve the discrepancy (Burke 1991; Stryker and Burke 2000). Anger induced by identity non-verification, exacerbated by limited avenues to address incongruence, likely manifests through deviant behavioral output. Behavioral outputs introduced into the social environment are subject to subsequent interpretation and perception, generating additional inputs to be compared to the identity standard. The cybernetic identity model is a continuous loop, focused mainly on meanings and symbols in the interaction (Burke 1991; Stryker and Burke 2000; Burke and Stets 2009).

Labeling could consequentially impact the verification process, and result in repeated congruency disturbances (Becker 1963), facilitating the stigmatization of a particular identity. One available corrective action is altering the meanings used to construct that identity (Burke and Stets 2009). Individuals responding to identity strain

with deviant coping, subject that behavior to interpretation and perception of others. Influenced by that deviant behavior, inputs received with connotations of deviance functioning to label the individual (Matsueda 1992), especially from affectively close others (Bartusch and Matsueda 1996), may be incongruent with previously held identity standards. This incongruence produces anger and a view of the sanction (the label) as unfair resulting in direct defiance of the label by increasing deviant behavior (Sherman 1993). Repeated interactions containing connotatively deviant inputs, combined with failed non-deviant behavioral outputs, such as the acquisition of a tattoo, may stigmatize the individual thereby exacerbating the original strain and requiring corrective action. By acknowledging the deviant connotations (possibly subconsciously) inputted to the identity standard, meanings reflecting deviance are incorporated into the identity standard shaping subsequently correlated behavior (Sampson and Laub 1993; Burke and Stets 2009).

Tattoos are symbols that contribute to an individual's identity in several ways. Tattoos can be part of an identity standard, used to convey certain meanings about how the individual would like to be perceived, therefore influencing other's reflected appraisals of the individual. Tattoos may be acquired to convey a desired identity or as a reaction to non-verification of an identity. Identities expressed through tattoos are not always deviant but may instead articulate a personal narrative, a personality characteristic (for example, animal lover), or belief in a cause or religion, to name a few. The acquisition of a tattoo may not convey the desired identity or have the desired effect on reflected appraisals resulting in the individual becoming labeled as deviant and

stigmatized for the tattoo. Reflected appraisals influenced by tattoo acquisition that label an individual as deviant may actually be the desired effect for those individuals wishing to be perceived as a deviant or outsider, and in this way, serve as a symbol of identity verification. Conversely, an individual may acquire a tattoo as a reaction to the stigmatization from becoming spuriously labeled as deviant in an effort to achieve identity verification and relieve incongruence. However, the increasingly widespread popularity and acceptance of tattoos since the mid-1990s may nullify the possible "deviant" labeling and ensuing stigmatization previously possible from tattoo acquisition. Tattoos express a countless number of meanings through symbols, not all of them deviant, and are important in several different identity processes increasing the likelihood of identity verification by helping control the perceptions of others. Based on this review of literature and theory, with models illustrating the analysis for each hypothesis following, I propose:

H_1: Adolescent tattoo acquisition at Wave I is *not* associated with changes in the level of deviant behavior at Wave II.

H_2: Tattoo acquisition in adolescence in Wave I is *not* associated with significant changes in deviant behavior over the life course (Wave IV).

Figure 1: The Influence of Tattoo Acquisition at Wave I on Changes in Deviant Behavior from Wave I to Wave II

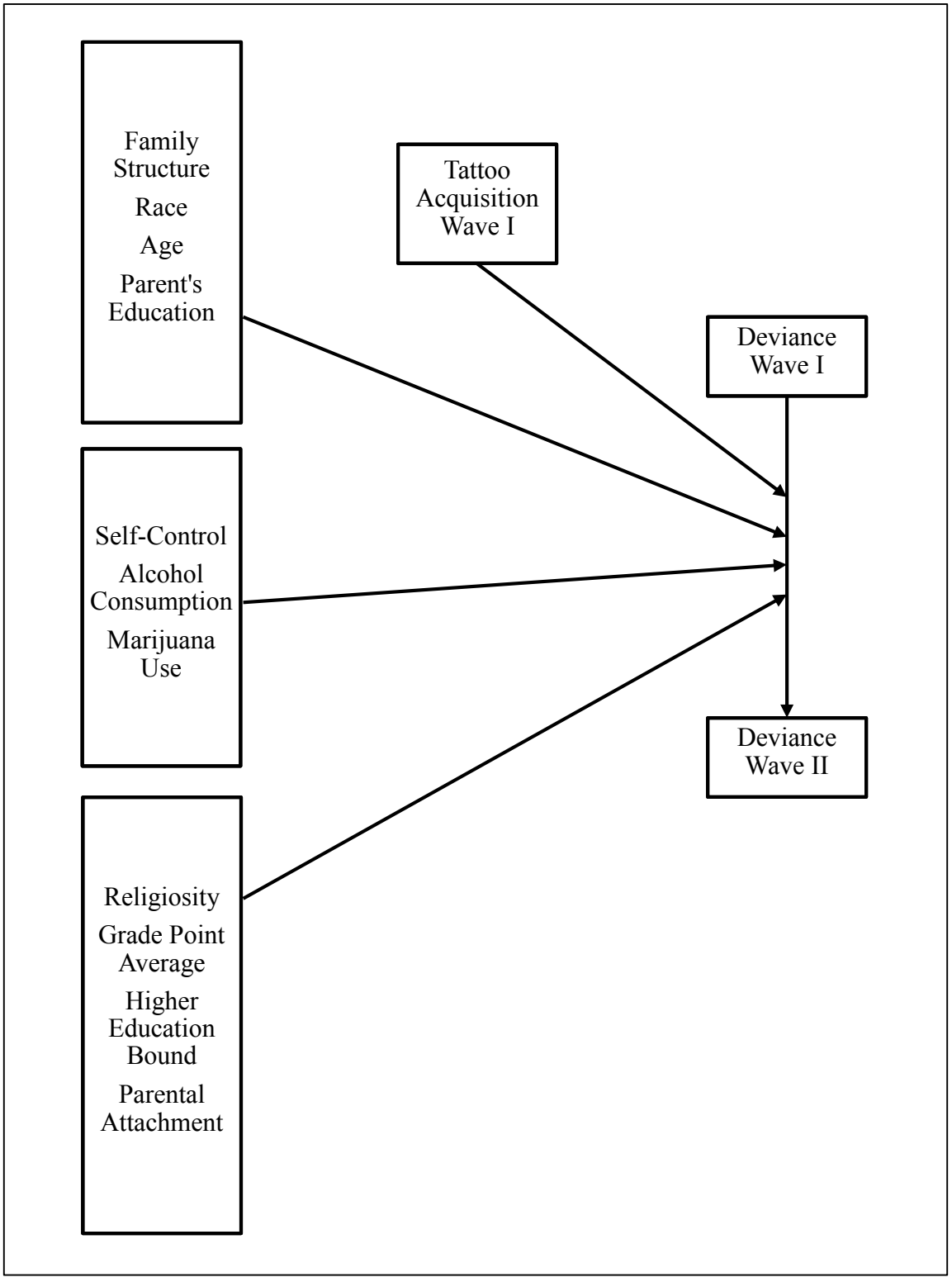
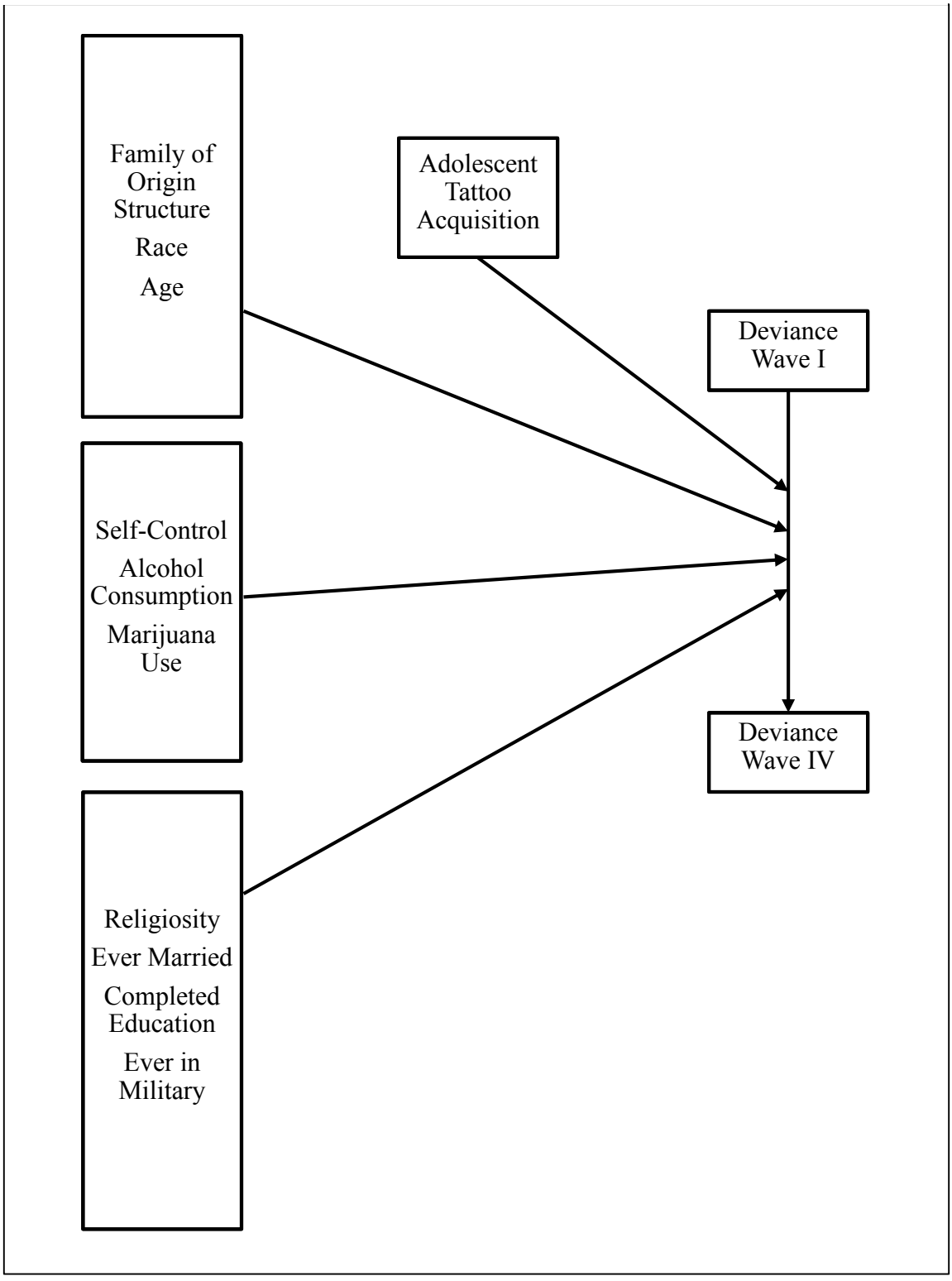


Figure 2: The Influence of Tattoo Acquisition in Adolescence on changes in Deviant Behavior over the Life Course (Wave IV)



METHODS

Data

To test these hypotheses I will be using data from the public-use version of the National Longitudinal Study of Adolescent to Adult Health (Add Health). The Add Health study began as a response from the U.S. government to study adolescent health and the influential factors that affect their health including personal traits, families, friendships, romantic relationships, peer groups, schools, neighborhoods, and communities (Harris, Halpern, Whitsel, Hussey, Tabor, Entzel, and Udry 2009). In emerging adulthood, the focus of the study shifted to the transition into adulthood and sought to evaluate how respondent's experiences and behaviors as adolescents effected their decisions, behavior, and health outcomes as young adults (Harris et al. 2009). Lastly, Wave IV of the Add Health study uses social, behavioral, and biomedical sciences to explore trajectories across the life course (Harris et al. 2009).

The Add Health survey sampling-frame originated from a database of high schools collected by Quality Education Data, Inc. From this database, 80 high schools were systematically selected using stratification to ensure a representative sample based on region of country, urbanicity, size, type, and ethnicity (Harris et al. 2009). In order to qualify for the study, the high school had to have an 11^{th} grade and enrolled more than 30 students. Out of the high schools selected, 70% participated and those that declined to participate were replaced by another high school in the same stratum (Harris et al. 2009). The high schools selected for the study also served to identify feeder schools that had a 7^{th} grade. Feeder schools were selected with probability proportional to the

amount of students that continued on to that high school. Again, if a feeder school did not participate, the school was replaced with another feeder school. The total number of schools involved in the study is 132 resulting in a sampling frame of greater than 100,000 students (Harris et al. 2009).

The Add Heath study began by collecting data from in-school questionnaires given to 90,118 students in grades 7 through 12 (Harris et al. 2009). During the first wave, conducted in 1994-95, researchers selected a sub-sample and also administered an in-home interview (N=20,745), a picture vocabulary test, a parent questionnaire (N=17,670), and gathered contextual and in-school network data from questionnaires administered to siblings, fellow students, and school administrators. Additionally, included in the in-home interviews was an oversampling to account for ethnicity (1,038 blacks from well-educated families [at least one parent with a college degree]; 334 Chinese; 450 Cuban; 437 Puerto Rican; more than 1,500 Mexican Americans; and significant numbers of Nicaraguans, Japanese, South Koreans, Filipinos, and Vietnamese), saturation (all enrolled students in 16 schools including 2 large schools with a total enrollment of more than 3,100 and 14 small schools with enrollments less than 300 students), disabled students (N=589), and a genetic sample (Harris et al. 2009). Wave II which was conducted in 1996 with students in grades 8 through 12 (students who were in 12th grade during Wave I and were not part of the genetic sample were excluded from follow-up) included follow-up in-home interviews with the adolescents (N=14,738) and follow-up school administrator telephone interviews (Harris et al. 2009). Wave III data collected in 2001-2002 when respondents were aged 18-24 will not be

used in this study (Harris et al. 2009). Wave IV data was collected in 2008 when respondents were age 24-32 (52 respondents were 33-34 years old) and included a comprehensive personal interview that also collected the respondents measurements and a biospecimen sample (N=15,701) (Harris et al. 2009).

Still representative of the U.S. school population, the public-use version of the original dataset is employed for analysis in the current study (Harris et al. 2009). The public-use version of this data includes information from all of the original sources and contains a randomly selected sample of slightly less than one-half of the original sample and one-half of the oversample of African Americans from well-educated families resulting in a sample size of approximately 6,500 respondents at Wave I and 4,834 respondents at Wave II (Harris et al. 2009). Wave IV public-use data also includes information from all original sources and comprises of a sample size of 5,114 respondents (Harris et al. 2009).

Variables

Deviant behavior. Deviant behavior of respondents in Wave I and Wave II was measured using a 15-item scale (See Appendix A for a full description of the items used) collected using audio-Computer-Assisted Self-Interviewing (audio-CASI) methodology and includes subscales measuring both violent and nonviolent deviance ranging in responses from 0 (never engaged in the behavior) to 3 (engaged in the behavior five or more times) (Hagan and Foster 2003). The 15 items were summed and averaged for respondents with at least eight non-missing values, creating a raw deviance score, and then multiplied by the number of scale items to convert the scale back to the original

metric. The Wave I full deviance scale has a mean of 4.09 with a standard deviation of 5.06 with adequate factor loadings ranging between 0.42 and 0.68 indicating strong construct validity and a Cronbach's alpha reliability score of 0.83 indicating strong internal consistency. The full deviance scale in Wave II was constructed identically to the scale in Wave I producing a mean of 3.26 with a standard deviation of 4.62 and factor loadings between 0.41 and 0.66 and Cronbach's alpha of 0.83 indicating strong internal validity and reliability.

The Wave IV full deviance scale was also collected through the audio-CASI methodology. Age appropriate modification of the deviance scale is appropriate to capture items of heterotypic continuity (Craig and Foster 2013). Heterotypic continuity suggests that while an underlying process or trait, such as being a deviant individual, remains unchanged over time, the manifestation of this process or trait does change (Rutter 1991). That is, behavior exhibited by an individual that is indicative of his or her deviant nature will change from adolescence into adulthood while the deviant nature of the individual may not change. As hypothesis 2 focuses on deviance in adulthood, and Arnett (2004) suggests that emerging adulthood does not take place in American culture until around 30 years old, Wave IV (collected when respondents were 28 to 32 years old) deviance measures are used to construct adult deviance. In an effort to provide a fair representation of deviance in adulthood, several variables were excluded through inadequate factor loadings. This produced a Wave IV deviance scale limited to 11-items (A full description of the items used in the scale is provided in Appendix B). The Wave IV full deviance scale was summed and averaged for respondents with at least six non-

missing values, creating raw deviance scores, then multiplied by the number of scale items to return the scale back to its original metric. This produced a mean deviance score of 0.39 with a standard deviation of 1.35. Final factor analysis produced loadings ranging between 0.40 and 0.65 indicating suitable construct validity and a Cronbach's alpha of 0.71 indicating adequate internal consistency.

Tattoos. The respondent's involvement with tattoos was measured in Wave I and Wave II of the Add Health data. A single question asked respondents "Do you have a permanent tattoo?" at Wave I and again at Wave II. Variables were created indicating whether the respondent reported already having a tattoo at Wave I (1 = yes), did not have a tattoo at Wave I but acquired a first tattoo at Wave II (1 = yes), or if the individual had ever acquired a tattooed in adolescence designated by respondents indicating a tattoo at either Wave I or Wave II (1 = yes). In Wave I, 304 respondents indicated having acquired a tattoo, 162 male and 142 female. There were 457 respondents that indicated ever acquiring a tattoo (in Wave I or II), 246 of them male and 211 female.

Age, Sex, and Race. Age is constructed using respondents date of birth subtracted from the date of the interview during Wave I for hypothesis 1 and Wave IV for hypothesis 2. Biological sex is recognized as an important factor in both deviance and tattoos. Brallier, Maguire, Smith, and Palm (2011) find that restaurant managers will hire non-tattooed females at a greater rate than tattooed males or females, but offer no similar preference for non-tattooed males. The findings by Bekhor et al. (1995) and Brallier et al. (2011) draw attention to the problematic situation in which females, who are already disadvantaged in the job market compared to males, sacrifice a competitive

advantage with the acquisition of tattoos. Additionally, there are gendered differences in predictors of deviance, elements of deviant coping, and factors impacting desistance (Daigle, Cullen, and Wright 2007; De Coster and Zito 2010; Craig and Foster 2013). Because significant gendered differences exist in terms of deviance and tattoos, each model of analysis will be conducted utilizing gendered sub-groups.

Race has been separated into the categories of White, Black, Asian/Pacific Islander, Native American, and Hispanic. Respondents will be limited to only one race through recoding. To ensure each race was adequately represented, a respondent's race was coded with the following priority: Hispanic, Black, Asian/Pacific Islander, Native American, Other, and White (Harris et al. 2009).

Substance use. Several studies have linked being tattooed with increased consumption of alcohol and marijuana (Forbes 2001; Roberts and Ryan 2002; Koch et al. 2010) while some have provided mixed or complex results (Adams 2009; Guéguen 2012). In the current study, alcohol use over the previous 12-month period is measured in Wave I (adolescent consumption) and Wave IV (adult consumption) using a 3-item scale derived from responses to items such as "how many days did you drink alcohol?" and "how many days did you drink five or more drinks in a row?" Marijuana use is measured over the previous 30-day period by asking the respondent how many times he or she used marijuana in that time frame. For marijuana use, Wave I and Wave II recorded responses as continuous but in Wave IV responses range from 0 (none) to 6 (every day or almost every day).

Social bonds. Social bonds have significant influence in desistance from deviance (Sampson and Laub 1993; Laub and Sampson 2003; Craig and Foster 2013; Leverentz 2014; Oselin 2014). Among the social bonds that are important to adolescents are school commitment, parental attachment, and religiosity (Sampson and Laub 1993). Social bonds in adult include religiosity, military involvement, education, and marriage (Laub and Sampson 2003). There are gendered differences in the level of impact on desistance from social bonds. Marriage, though significant for both genders, has more of an effect on male desistance, whereas military involvement is significant only in female desistance (Craig and Foster 2013). Female desistance from crime and drugs, locates educational attainment as a central factor (Leverentz 2014; Oselin 2014).

A 10-item parental attachment scale was created using questions asked in Wave I such as "How close do you feel to your mother [or father]" and "You are satisfied with the way your mother [or father] and you communicate with each other." The summed mean of the 10 items indicate appropriate construct validity with factor loadings between .50 and .86 producing a Cronbach's alpha score of .89. A respondent's school commitment was measured by his or her school achievement as indicated by grade point average and his or her collegiate aspirations. Grade point average was measured on a 4-point scale (4 = A, 1 = D or lower) using the mean of respondent's grade earned in Math, Science, English, and History. College aspirations were measured by asking the level of desire and the perceived likelihood of respondent attending college (5 = high, 1 = low). The two items were summed and averaged to create a scale of college aspirations. Religiosity was measured at Wave I and Wave IV by asking respondents "In the past 12

months, how often did you attend religious services?" with responses ranging from once a week or more to never. Respondents were asked in Wave IV "How many persons have you ever married?" which was recoded to reflect whether the respondent was ever married (1 = yes) or not. In Wave IV respondents were also asked to report his or her highest level of education achieved. Since the values indicating post baccalaureate education were higher than that of most graduate school education, respondent's education was recoded to reflect this difference. Respondents were coded as either having military experience or not (1 = yes).

Family socioeconomic status. Family of origin socioeconomic status and composition is typically negatively related to deviant behavior through familial strains experienced by parents and inherited by their offspring. The educational attainment of an individual is typically indicative of his or her socioeconomic status. The parental education variable accounts for family structure in that it takes the highest level of education from either parent. In Wave I, a resident parent (typically the mother) was surveyed regard a variety of questions including highest level of education. The parent was also ask about their partner's highest level of education. The highest level of education between the surveyed parent and his or her partner is used to construct the parent's highest level of education, taking into account family composition.

Respondent's family structure is separated into several categories based on Wave I reports indicating whether the respondent came from a single-parent family, two-parent biological family, two-parent blended family, foster family, or a family of other composition. Many studies using Add Health data use these family structures (Harris

1999) but foster children's unique experience with deviance and stigmatization warrant the use of a separate category here (Huebner and Gustafson 2007). The variable indicating single-parent family structure include families for which there is only one biological or step/adoptive parent. The variable indicative of a two-parent biological family requires both parents to be biologically related to the respondent. Blended families consist of two parents with one being the biological parent and the other as the step/adoptive parent or unique cases in which both primary caregivers are step/adoptive. Foster families can be comprised either one or two foster parents. All other family structures were placed in the "other" family structure category.

Self-control. The countless stories of impulsive acquisitions of tattoos – getting tattooed on spring break during college – and the purportedly addictive nature of tattoo acquisition allows for the possibility that tattoos are more often acquired by individuals with low impulse control. Despite previous research (Armstrong 1991; Forbes 2001) indicating the lack of intoxication and spontaneity involved in the acquisition of tattoos, personal experience – I once got a tattoo because it was raining and I was bored – and numerous secondhand experiences with impulsive tattoo acquisition combined with self-control theories lends some credit to measuring impulsivity among respondents. It is, however, possible that impulsivity in tattoo acquisition may be related to differential association. Individuals associating with others who construct in-group norms as positive valuation of tattoo acquisition may feel less need to contemplate their decision to acquire a tattoo due to perceived reduced social sanctions (Sutherland 1947; Adams 2009). Impulsivity, sometimes embedded in hyperactivity, has been linked to increased

deviant behavior (Moffitt, Caspi, Rutter, and Silva 2001). Additionally, impulsivity has been associated with increased male deviance (LaGrange and Silverman 1999). Accordingly, self-control will be measured through individual's level of impulsivity.

Respondent's impulsivity during adolescence is measured using the summed mean of a 5-point Likert scale of four items for respondents with at least two non-missing values. Questions measuring adolescent impulsivity asked, "When making decisions, you generally use a systematic method for judging and comparing alternatives" providing indications of impulsivity because they evaluate the respondent's ability to plan, assess the consequences of a decision, and need for instant gratification. The adolescent impulsivity scale demonstrates strong construct validity with factor loadings between .72 and .77 and a Cronbach's alpha score of .74. Adult impulsivity is measured on a three-item scale for which there are at least two non-missing values. The scales is constructed from questions collected using a 5-point Likert scale. Those questions are as follows: "When making a decision, I go with my 'gut feeling' and don't think much about the consequences of each alternative," "I live my life without much thought for the future," and "I like to take risks." Adult impulsivity has adequate construct validity with factor loadings between .67 and .79 with a Cronbach's alpha of .54.

Analysis

When the Add Health data was collected, it was done so using cluster samples selected with unequal probability. This survey design results in observations not being independent and identically distributed, requiring statistical methods to address this

complex survey data to generalize the data to the national population (Chantala and Tabor 1999 [2010]. Using Survey procedures in Stata, ordinary least squares (OLS) regression will be used in combination with sampling weights for public use data as appropriate for each hypothesis (Chen and Chantala 2014). The differences in the outcome variables for each hypothesis require different sample weights to be used for each hypothesis (Chen and Chantala 2014). Hypotheses 1 utilizes longitudinal analysis of tattoo acquisition with Wave II deviance as an outcome variable. Accordingly, the grand sample weight and cluster for Wave II public data was used in the analysis. Because hypothesis 2 utilizes data with an outcome variable at Wave IV, the post stratification longitudinal grand sample weight and cluster for Wave IV public data was used (Chen and Chantala 2014). Listwise deletion will be used to address missing responses from the variables used in the analysis.

Descriptive information for deviance scales, tattoo acquisition, and demographic variables can be found in Appendix C and Appendix D. Analyses will utilize sub-group change score models by gender to evaluate the proposed hypotheses resulting in hypothesis 1 having N=3,815 (1,809 males and 2,006 females) and N=3,300 for hypothesis 2 (1,466 males and 1,834 females). Additionally, analysis will be completed using a subpopulation of respondents with non-missing values on all independent and dependent variables, creating a consistent sample size across models allowing for direct comparison of effects between models. A change-score approach of survey-adjusted OLS regressions analyzes longitudinal changes in deviance while controlling for prior deviance in adolescence (Allison 1990; Craig and Foster 2013). The residual difference

between measurements is the dependent variable. The use of change-score models provides protection from spuriousness by accounting for other unmeasured influences (Craig and Foster 2013).

To evaluate hypothesis 1, that "Adolescent tattoo acquisition is *not* associated with changes in the level of deviant behavior," survey-adjusted OLS regression models will be used. Participants indicating the acquisition of a tattoo in Wave II are excluded from this analysis to increase the understanding of changes in deviant behavior participation following the acquisition of a tattoo compared to those without the propensity to become tattooed. Following analysis using the full deviance scale, more detail is provided regarding changes in deviant behavior through violent and nonviolent subscales. Separate analysis for males and females are used to test for significant gendered differences in deviance and tattoo experiences (Paternoster, Brame, Mazerolle, and Piquero 1998; Poston and Conde 2014). Change score models calculated using the full deviance scale are presented separately for males in Table 4 and females in Table 5. Tables 6 and 7 present a nuanced look at the changes in violent deviant behavior for males and females, respectively. Results evaluating nonviolent deviant behavior are displayed in Table 8 for males and Table 9 for females.

Hypothesis 2, that "Tattoo acquisition in adolescence is *not* associated with significant changes in deviant behavior over the life course," seeks to evaluate the longitudinal effects of becoming tattooed as an adolescent by measuring the change in deviant behavior from adolescence into adulthood (from Wave I to Wave IV) comparing adults who reported being tattooed in adolescence (in Wave I or Wave II) to those who

reported never becoming tattooed in adolescence. Survey-adjusted OLS regression models, using a change-score approach, will be used to analyze the change in deviant behavior from adolescence into adulthood, measuring just the effects of tattoos in Model 1, and while controlling for family of origin structure and demographics in Model 2. Model 3 accounts for substance use, social bonds in Model 4, and concurrent analysis of all factors in Model 5. Gendered sub-groups are used throughout to evaluate gender specific experiences with tattoos and deviance. Results are presented in Tables 10 through 15.

Since the analyses for this research are each conducted using gendered sub-groups, correlations are calculated separately for each gender. Correlations between each independent variable are not particularly high. The most correlated independent variables in hypothesis 1 are parental attachment and single-parent family structure correlated at -0.57 and religiosity and alcohol consumption in hypothesis 2 correlated at -0.28. Additionally, the highest Variance Inflation Factor of any independent variable in hypothesis 1 is 2.04 and 1.35 in hypothesis 1, indicating no suspicion of multicollinearity.

RESULTS

The Association Between Tattoos and Deviance

Prior research has suggested people with tattoos are more deviant (Koch, Roberts, Armstrong, and Owen 2010) and that prior deviance predicts tattoo acquisition (Silver, VanEseltine, and Silver 2009). Table 1 presents the results of several t-tests completed on the subpopulation of each hypothesis. Results testing the difference between tattooed and non-tattooed adolescents in their mean deviant behavior in each wave of the first hypothesis indicate the means are significantly different from 0, meaning there is a significant difference between the mean deviant behavior of tattooed and non-tattooed adolescents in hypothesis 1, regardless of gender. Additionally, the mean differences of deviant behavior from Wave and Wave II were tested for tattooed and non-tattooed adolescents. These results indicate the difference in mean deviant

Table 1: T-Tests for Deviance and Tattoo Acquisition

	Males (N=1,809)			Females (N=2,006)		
Hypothesis 1 Subpopulation	Deviance Wave I	Deviance Wave II	T-Score	Deviance Wave I	Deviance Wave II	T-Score
Tattooed	8.73	5.03	3.19***	7.85	5.19	1.79
Non-Tattooed	4.67	3.64	5.71***	3.25	2.70	4.54***
T-Score	-5.76***	-2.18***		-7.55***	-4.63***	
	Males (N=1,466)			Females (N=1,834)		
Hypothesis 2 Subpopulation	Deviance Wave I	Deviance Wave IV	T-Score	Deviance Wave I	Deviance Wave IV	T-Score
Adolescently Tattooed	7.74	0.71	12.52***	6.11	0.34	12.06***
Not Tattooed in Adolescence	4.64	0.60	32.50***	3.26	0.19	38.19***
T-Score	-6.99***	-0.87		-8.81***	-1.94	

*** p<0.001, ** p<0.01, * p<0.05

behavior between Wave and Wave II is significantly different from 0 in hypothesis, meaning participants mean deviant behavior in Wave I is significantly different from their mean deviant behavior in Wave II, regardless of tattoo acquisition and gender.

When using the subpopulation for hypothesis 2, the results of a t-test indicate a significant difference in mean deviant behavior at Wave I between those who were adolescently tattooed and those not tattooed in adolescence, regardless of gender. However, there appears to be no significant difference in mean deviant behavior at Wave IV between the groups, regardless of gender. Both adolescently tattooed and those not tattooed in adolescence have significant differences in mean deviant behavior between Wave I and Wave IV, regardless of gender. The t-tests presented in Table 1 indicate there is significant change in deviant behavior between each wave of analysis for both tattooed and non-tattooed individuals, but does tattoo acquisition influence the level of change in that deviant behavior?

The results of the correlation matrix presented in Table 2 shows the main correlations of deviance and the different categories of tattoo acquisition at each focal wave. The results displayed in the correlation matrix suggest there is a positive relationship between tattoos and deviance, particularly during adolescence. This may be indicative of a rebellious motivation for becoming tattooed during one's youth or may simply be related through the time of occurrence – the age of tattoo acquisition may simply coincide with the age one peaks in his or her deviant behavior. Multivariate analysis will provide greater context and suggestions for explaining the relationship between adolescent tattoo acquisition and deviant behavior.

Table 2: Gendered Correlation Matrix for Main Variables

	Wave 1 Deviance Scale	Wave 2 Deviance Scale	Wave 4 Deviance Scale
Males			
Tattooed at Wave 1	0.13***	0.05*	
Tattooed in Adolescence	0.15***		0.02
Females			
Tattooed at Wave 1	0.13***	0.06*	
Tattooed in Adolescence	0.18***		0.05*

*** p<0.001, ** p<0.01, * p<0.05

Deviant Behavior Following Tattoo Acquisition

As demonstrated earlier, much research has found some correlation between tattoos and deviance (Koch et al. 2010 for example). The sample population used in this research is no different. The results of a survey-adjusted bivariate regression, shown in Table 2, demonstrate the relationship between having a tattoo at Wave I and deviance at Wave I and Wave II separately for males and females. This is followed by a survey-adjusted bivariate regression showing those adolescently tattooed are associated with greater deviance at Wave I, but not at Wave IV, regardless of gender. Using Add Health data, Silver, VanEseltine, and Silver (2009) established that prior deviance in Wave I is predictive of future tattoo acquisition in Wave II. However, the results from the bivariate analysis show greater deviance at Wave I than Wave II when a tattoo was reported in Wave I. Does the acquisition of a tattoo possible mediate future deviant behavior?

To further explore deviant behavior following the acquisition of a tattoo, adolescents' change in deviance is modeled from Wave I to Wave II, comparing those reporting having a tattoo at Wave I to non-tattooed adolescents. Several models representing the effects of having a tattoo at Wave I on the changes in deviance that

Table 3: Bivariate Analysis of Tattoos and Deviance

	Deviance Wave I	Deviance Wave II	Deviance Wave IV
Males			
Tattooed at Wave 1 (N = 1,809)	4.20***	2.05*	
Adolescently Tattooed (N = 1,466)	3.41***		0.12
Females (N = 2,006)			
Tattooed at Wave 1 (N = 2,006)	4.00 ***	2.04*	
Adolescently Tattooed (N = 1,834)	2.64***		0.28

*** p<0.001, ** p<0.01, * p<0.05

occur from Wave I to Wave II are displayed in Table 4 for male adolescents and Table 5 for female adolescents. Although tattoo acquisition was significantly associated with greater deviant behavior, as shown in Tables 2 and 3, initial analysis, displayed in Model 1 of Table 4 and 5, indicates no significant effects of tattoo acquisition on changes in male or female deviant behavior from Wave I to Wave II when controlling for no other factors. In Model 2, variables are introduced controlling for family structure, age, family socioeconomic status (SES), and race. Regardless of gender, the acquisition of a tattoo at Wave I has no significant effect on deviance at Wave II net of deviance at Wave I and control variables. Measures of alcohol consumption, marijuana use, and self-control are

introduced in Model 3. Providing additional support for hypothesis 1, net of substance use and self-control, results show that tattooed adolescents did not significantly differ from non-tattooed adolescents in deviant behavior at Wave II, net of Wave I deviance and other controls. Model 4 illustrates the effects of getting a tattoo on changes in deviant behavior while accounting for the influence of social bonds. Tattooed adolescents, regardless of gender and net of social bonds, showed no significant difference in deviance change from Wave I to Wave II compared to their non-tattooed

Table 4: Effect of a Tattoo at Wave I on Deviance at Wave II in Males (N = 1,809)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed at Wave 1 [a]	0.35	0.28	0.24	0.22	0.20
Parental Attachment				-0.63*	-0.65*
College Aspirations				0.11	0.13
School Achievement				-0.30	-0.30
Religiosity Wave 1				-0.08	-0.09
Wave I Self-Control			0.15		0.08
Wave I Alcohol Use			0.09		0.08
Wave I Marijuana Use			-0.01***		-0.01***
Deviance Wave 1	0.44***	0.42***	0.43***	0.41***	0.41***
Single-Parent Family [b]		0.44	0.44	-0.18	-0.19
Blended Family [b]		0.14	0.14	-0.04	-0.04
Foster Family [b]		-2.27*	-2.23*	-2.74*	-2.67*
Other Family [b]		-0.08	0.12	-0.57	-0.37
Age		-0.13*	-0.14*	-0.16**	-0.18**
Parent's Education		0.03	0.02	0.04	0.03
Black [c]		-0.53	-0.52	-0.53	-0.53
Hispanic [c]		0.47	0.47	0.49	0.47
Asian/Pacific Islander [c]		0.54	0.54	0.57	0.56
Native American [c]		0.63	0.82	0.59	0.78
Other Race [c]		0.26	0.20	0.35	0.29
Constant	1.52***	3.24**	3.15**	7.08***	7.18***
R^2	0.26	0.25	0.26	0.26	0.26

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

Table 5: Effect of a Tattoo at Wave I on Deviance at Wave II in Females (N=2,006)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed at Wave 1 [a]	-0.33	0.17	0.26	0.03	0.16
Parental Attachment				-0.46***	-0.39**
College Aspirations				-0.01	-0.02
School Achievement				-0.13	-0.11
Religiosity Wave 1				-0.02	-0.02
Wave I Self-Control			0.30**		0.22*
Wave I Alcohol Use			0.22*		0.20
Wave I Marijuana Use			-0.06		-0.06
Deviance Wave 1	0.52***	0.54***	0.53***	0.52***	0.52***
Single-Parent Family [b]		-0.29	-0.29	-0.67**	-0.61**
Blended Family [b]		0.06	0.02	-0.05	-0.07
Foster Family [b]		-2.11	-1.89	-2.25	-2.05
Other Family [b]		-0.20	-0.26	-0.42	-0.45
Age		-0.24***	-0.25***	-0.27***	-0.28***
Parent's Education		0.07*	0.07*	0.09*	0.09*
Black [c]		0.10	0.22	0.10	0.21
Hispanic [c]		0.22	0.22	0.22	0.23
Asian/Pacific Islander [c]		0.34	0.37	0.26	0.29
Native American [c]		-0.56	-0.61	-0.55	-0.60
Other Race [c]		-0.28	-0.22	-0.30	-0.24
Constant	1.02***	4.22***	3.64***	7.23***	6.38***
R^2	0.37	0.41	0.41	0.41	0.42

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

counterparts suggesting further support for hypothesis 1. To obtain a more holistic picture, the effects of tattoo acquisition on changes in deviant behavior are analyzed in Model 5, accounting for the simultaneous influences of substance use, self-control, and social bonds. Once again, tattooed adolescents, regardless of gender, did not significantly differ from their non-tattooed counterparts in deviant behavior changes from Wave I to Wave II, net of substance use, self-control, and social bonds.

The results displayed in Tables 4 and 5 provide initial evidence to support hypothesis 1. While tattoos may be associated with deviance, the acquisition of a tattoo has no impact on changes in deviant behavior. Non-deviant adolescents who acquire a tattoo will not suddenly become more or less deviant and deviant adolescents who acquire a tattoo will not dramatically increase in their deviant behavior. That is to say, deviant behavior in tattooed adolescents changes similarly to adolescents without tattoos.

Table 6: Effects of Tattoo at Wave I on Violent Deviance at Wave II for Males (N=1,809)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed at Wave 1 [a]	0.35	0.30	0.20	0.23	0.14
Parental Attachment				-0.14	-0.14
College Aspirations				-0.07	-0.06
School Achievement				-0.06	-0.05
Religiosity Wave 1				-0.01	-0.01
Wave I Self-Control			0.02		-0.02
Wave I Alcohol Use			0.14**		0.13**
Wave I Marijuana Use			-0.00*		-0.00*
Violent Deviance Wave 1	0.34***	0.29***	0.27***	0.28***	0.26***
Single-Parent Family [b]		0.19	0.17	0.05	0.03
Blended Family [b]		0.18	0.18	0.14	0.14
Foster Family [b]		-0.39	-0.27	-0.65	-0.51
Other Family [b]		0.07	0.08	-0.07	-0.05
Age		-0.01	-0.04	-0.03	-0.05*
Parent's Education		-0.02	-0.03	-0.01	-0.02
Black [c]		0.07	0.13	0.09	0.14
Hispanic [c]		0.31	0.33*	0.34*	0.35*
Asian/Pacific Islander [c]		0.27	0.29	0.29	0.31
Native American [c]		0.28	0.33	0.25	0.30
Other Race [c]		-0.20	-0.21	-0.17	-0.18
Constant	0.34***	0.60	0.97*	1.82**	2.17***
R^2	0.19	0.17	0.18	0.18	0.19

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

To provide further insight into the relationship between tattoos and deviance, a separate analysis of violent and nonviolent deviant behavior was completed for both male and female adolescents. Table 6 for males and Table 7 for females displays results reflecting the effect of getting a tattoo at Wave I on violent deviant behavior at Wave II, net of violent deviance at Wave I. Model 1 again shows no effect of tattoos on changes in violent deviant behavior for either male or female adolescents. Controlling for

Table 7: Effects of Tattoo at Wave I on Violent Deviance at Wave II for Females (N = 2,006)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed at Wave 1 [a]	0.05	0.13	0.13	0.08	0.10
Parental Attachment				-0.05	-0.04
College Aspirations				0.01	-0.01
School Achievement				-0.06	-0.06
Religiosity Wave 1				-0.05**	-0.05*
Wave I Self-Control			-0.03		-0.05
Wave I Alcohol Use			0.09**		0.07*
Wave I Marijuana Use			-0.01		-0.01*
Violent Deviance Wave 1	0.41***	0.43***	0.42***	0.42***	0.42***
Single-Parent Family [b]		-0.03	-0.04	-0.10	-0.10
Blended Family [b]		0.07	0.06	0.04	0.03
Foster Family [b]		0.24	0.20	0.14	0.11
Other Family [b]		-0.00	-0.02	-0.03	-0.05
Age		-0.04*	-0.05**	-0.05**	-0.06***
Parent's Education		0.01	0.01	0.01	0.01
Black [c]		0.09	0.12	0.11	0.13
Hispanic [c]		0.21*	0.23*	0.23*	0.24*
Asian/Pacific Islander [c]		0.12	0.12	0.13	0.12
Native American [c]		-0.26	-0.25	-0.27	-0.26
Other Race [c]		-0.10	-0.09	-0.09	-0.08
Constant	0.14***	0.65**	0.86**	1.21***	1.46***
R^2	0.26	0.30	0.31	0.31	0.31

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

demographics and family background in Model 2 yields no significant difference between tattooed and non-tattooed adolescents in violent deviant behavior change. Accounting for substance use and self-control did not produce any significant effects on violent deviant behavior change for tattooed adolescents compared to non-tattooed adolescents, regardless of gender. Additional measures to control for social bonds did not yield any significant effects of tattoos of violent deviant behavior change from Wave

Table 8: Effects of Tattoo at Wave I on Nonviolent Deviance at Wave II for Males (N = 1,809)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed at Wave 1 [a]	0.09	0.06	0.12	0.05	0.12
Parental Attachment				-0.43*	-0.45*
College Aspirations				0.16	0.18
School Achievement				-0.25	-0.26
Religiosity Wave 1				-0.07	-0.07
Wave I Self-Control			0.11		0.07
Wave I Alcohol Use			-0.04		-0.05
Wave I Marijuana Use			-0.01**		-0.01**
Nonviolent Deviance Wave 1	0.47***	0.46***	0.48***	0.45***	0.46***
Single-Parent Family [b]		0.25	0.28	-0.19	-0.18
Blended Family [b]		-0.04	-0.03	-0.17	-0.16
Foster Family [b]		-1.79*	-1.83*	-2.00*	-2.05*
Other Family [b]		-0.07	0.12	-0.41	-0.22
Age		-0.12*	-0.12*	-0.15**	-0.14**
Parent's Education		0.03	0.03	0.04	0.03
Black [c]		-0.53*	-0.56*	-0.55*	-0.58*
Hispanic [c]		0.19	0.17	0.18	0.16
Asian/Pacific Islander [c]		0.22	0.19	0.24	0.20
Native American [c]		0.33	0.47	0.31	0.44
Other Race [c]		0.38	0.31	0.45	0.38
Constant	1.21***	2.93***	2.63**	5.37***	5.22***
R^2	0.27	0.27	0.27	0.27	0.28

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

I to Wave II. Lastly, concurrently controlling for social bonds, marijuana use, alcohol consumption, and self-control continued to produce no significant effects of tattooing on violent deviant behavior change, affording greater support to hypothesis 1, that tattooed and non- tattooed adolescents change the level of their deviant participation similarly.

While there has been no significant effects of tattooing on changes in general deviance or violent deviance, Tables 8 and 9 provide further analysis of changes in nonviolent deviant behavior for male and female adolescents, respectively. In Model 1, acquiring a tattoo at Wave I is shown to have no effect on nonviolent deviant behavior at Wave II, net of deviance at Wave I regardless of gender. Measures added in Model 2 accounting for demographics and family background, in Model 3 accounting for alcohol consumption, marijuana use, and self-control, in Model 4 to evaluate the influence of social bonds, and in Model 5 simultaneously controlling for all previous models, all yield no effects of tattoo acquisition on nonviolent deviance at Wave II, net of nonviolent deviance at Wave I.

Supporting hypothesis 1, tattooed and non-tattooed adolescents change similarly in nonviolent deviant participation from Wave I to Wave II. Analysis of the full deviance scale indicated no significant differences between tattooed and non-tattooed adolescents in subsequent deviant behavior changes from Wave I to Wave II, regardless of gender. Separating violent from nonviolent deviant behavior to provide more insight into to these findings, solidified the absence of any significant difference between tattooed and non-tattooed adolescents in deviant behavior change following tattoo acquisition. The null hypothesis, that tattooed and non-tattooed adolescents differ in

changes to their deviant behavior, is rejected. Tested in several different models, these results indicate strong support for the hypothesis that "Adolescent tattoo acquisition is *not* associated with changes in the level of deviant behavior."

Table 9: Effects of Tattoo at Wave I on Nonviolent Deviance at Wave II for Females (N = 2,006)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed at Wave 1 [a]	-0.30	0.14	0.18	0.02	0.10
Parental Attachment				-0.43***	-0.36**
College Aspirations				-0.03	-0.03
School Achievement				-0.09	-0.07
Religiosity Wave 1				0.02	0.03
Wave I Self-Control			0.35***		0.28**
Wave I Alcohol Use			0.17		0.16
Wave I Marijuana Use			-0.04		-0.04
Nonviolent Deviance Wave 1	0.53***	0.55***	0.53***	0.52***	0.51***
Single-Parent Family [b]		-0.24	-0.23	-0.58**	-0.51**
Blended Family [b]		0.00	-0.04	-0.09	-0.10
Foster Family [b]		-2.31	-2.06	-2.39*	-2.16
Other Family [b]		-0.18	-0.23	-0.39	-0.40
Age		-0.21***	-0.21***	-0.24***	-0.23***
Parent's Education		0.06*	0.06*	0.07*	0.07*
Black [c]		0.06	0.16	0.04	0.13
Hispanic [c]		0.03	0.03	0.02	0.01
Asian/Pacific Islander [c]		0.23	0.28	0.15	0.19
Native American [c]		-0.20	-0.26	-0.20	-0.25
Other Race [c]		-0.23	-0.17	-0.25	-0.20
Constant	0.93***	3.77***	2.98***	6.46***	5.35***
R^2	0.35	0.38	0.39	0.39	0.40

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

Longitudinal Effects of Tattoos on Deviant Behavior

It is possible that the association between tattoos and deviant behavior does not quickly develop. One does not get a tattoo and decide that afternoon to increase deviant behavior. If there is a relationship, it is likely one that develops over time, through continued stigmatization, rejection from one's non-tattooed peers, and possible decent into the tattoo subculture. To explore the longitudinal association between deviant behavior and tattoos, change in deviant behavior from adolescence (Wave I) into adulthood (Wave IV) is comparatively evaluated between individuals tattooed in adolescence at either Wave or Wave II and individuals who did not acquire a tattoo in adolescents. Since indicators of tattoo acquisition are absent from Wave III and Wave IV data collection, individuals not tattooed at Wave I or II are used as the reference group in testing deviant behavior at Wave IV. Additionally, research discussed earlier (Carroll and Anderson 2002 among others) indicates individuals acquiring an adolescent tattooing may be at greater risk for future deviance than those not acquiring a tattoo in adolescence. The following Tables present the results of this analysis using the full, age appropriate deviance scales, followed by separate violent and nonviolent deviance scales, by gender.

Similar to the analysis of short-term or immediate effects of tattoos on deviant behavior, Model 1 in Table 10 for males and Table 11 for females indicates getting a tattoo in adolescence has no effect on longitudinal changes in general deviant behavior regardless of gender. Adding measures accounting for demographics and family background in Model 2 did not produce any significant effects on changes in deviant

behavior, regardless of gender or adolescent tattoo acquisition. Providing more support for hypothesis 2, when controlling for alcohol use, marijuana use, and self-control in adulthood, results shown in Model 3 indicate there were no significant effects of adolescent tattoo acquisition on changes in general deviant behavior over the life course for either males or females. Model 4 demonstrates the influence of social bonds in adulthood, but fails to show any regardless of gender. Providing additional support for hypothesis 2, shown in Model 5, significant effects of adolescent tattooing on long-term

Table 10: Adolescently Tattooed Deviance Change Across the Life Course (By Wave IV) in Males (N = 1,466)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed Adolescent (Wave I or Wave II)	-0.05	-0.07	-0.13	-0.11	-0.15
Ever Married				-0.18	-0.04
Education				-0.03	-0.01
Ever in Military				0.19	0.26
Religiosity Wave 4				-0.11**	-0.03
Adult Self-Control			0.20**		0.19**
Adult Alcohol Use			0.05		0.05
Adult Marijuana Use			0.22***		0.22***
Deviance Wave 1	0.05***	0.05***	0.03**	0.05***	0.03**
Single-Parent Family [b]		0.20*	0.08	0.15	0.06
Blended Family [b]		0.16	0.08	0.11	0.05
Foster Family [b]		-0.97***	-0.85***	-1.14***	-0.88***
Other Family [b]		0.26	0.09	0.18	0.06
Age		-0.04	-0.02	-0.02	-0.01
Black [c]		0.40*	0.52***	0.42**	0.53***
Hispanic [c]		0.00	0.09	0.00	0.08
Asian/Pacific Islander [c]		0.07	0.20	0.08	0.21
Native American [c]		0.17	0.22	0.16	0.21
Other Race [c]		-0.26	-0.12	-0.25	-0.10
Constant	0.38***	1.39	0.04	1.27	0.05
R^2	0.04	0.05	0.14	0.07	0.14

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

Table 11: Adolescently Tattooed Deviance Change Across the Life Course (By Wave IV) in Females (N = 1,834)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed Adolescent (Wave I or Wave II)	0.21	0.24	0.22	0.20	0.20
Ever Married				-0.12**	-0.06
Education				-0.02*	-0.02*
Ever in Military				0.01	-0.03
Religiosity Wave 4				-0.04	-0.01
Adult Self-Control			0.13*		0.11*
Adult Alcohol Use			0.05*		0.05*
Adult Marijuana Use			0.11***		0.10***
Deviance Wave 1	0.03***	0.03***	0.02*	0.02**	0.02
Single-Parent Family [b]		-0.02	-0.04	-0.04	-0.05
Blended Family [b]		0.12	0.11	0.10	0.10
Foster Family [b]		-0.18	-0.38*	-0.17	-0.38*
Other Family [b]		0.18	0.12	0.15	0.10
Age		-0.04*	-0.03	-0.03	-0.02
Black [c]		0.08	0.11*	0.07	0.10
Hispanic [c]		0.08	0.10	0.07	0.09
Asian/Pacific Islander [c]		-0.11	-0.09	-0.12	-0.09
Native American [c]		0.19	0.14	0.15	0.11
Other Race [c]		-0.09	-0.08	-0.05	-0.07
Constant	0.09*	1.08*	0.47	1.13*	0.61
R^2	0.03	0.04	0.09	0.05	0.10

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

effects of deviant behavior, individuals tattooed in adolescence change in their general deviant participation similarly to those not tattooed in adolescence, net of social bonds, substance use, self-control, demographics, and family background.

Separate evaluation of violent and nonviolent deviance will provide a more nuanced understanding of changes in deviant behavior related to the acquisition of a tattoo in adolescence. Model 1 in Table 12 shows there is no significant effects of tattoos in adolescence on changes in male violent deviant behavior. However, in Table

13, Model 1 indicates that females becoming tattooed in adolescence significantly increase in violent deviance over the life course. In Model 2, males continue to show no effects of adolescent tattoos on long-term changes in violent deviant behavior while females who are tattooed in adolescence increase in violent deviant behavior, net of demographics and family background. The addition of controls in Model 3 for substance use and self-control shows females who were tattooed in adolescence increase

Table 12: Adolescently Tattooed Male Violent Deviance Change Across the Life Course (By Wave IV) (N = 1,466)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed Adolescent (Wave I or Wave II)	-0.02	-0.05	-0.06	-0.07	-0.07
Ever Married				-0.04	-0.02
Education				-0.01	-0.01
Ever in Military				0.19	0.19
Religiosity Wave 4				-0.03	-0.02
Adult Self-Control			0.07*		0.06
Adult Alcohol Use			0.01		0.01
Adult Marijuana Use			0.03		0.03
Violent Deviance Wave 1	0.07***	0.06***	0.06**	0.06**	0.05**
Single-Parent Family [b]		0.21***	0.19**	0.19**	0.18**
Blended Family [b]		0.11	0.10	0.08	0.07
Foster Family [b]		-0.27**	-0.28*	-0.30**	-0.28*
Other Family [b]		0.18	0.15	0.14	0.12
Age		-0.00	-0.00	0.00	0.00
Black [c]		0.08	0.11	0.09	0.11
Hispanic [c]		0.03	0.04	0.02	0.04
Asian/Pacific Islander [c]		-0.03	-0.02	-0.03	-0.01
Native American [c]		0.38*	0.39*	0.37*	0.38*
Other Race [c]		-0.07	-0.05	-0.05	-0.03
Constant	0.13***	0.15	-0.17	0.14	-0.14
R^2	0.03	0.05	0.06	0.06	0.07

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

Table 13: Adolescently Tattooed Female Violent Deviance Change Across the Life Course (By Wave IV) (N = 1,834)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed Adolescent (Wave I or Wave II)	0.14*	0.14*	0.14*	0.13*	0.13*
Ever Married				-0.02	-0.01
Education				-0.01	-0.01
Ever in Military				0.02	0.02
Religiosity Wave 4				-0.01	-0.00
Adult Self-Control			0.03*		0.03
Adult Alcohol Use			0.01		0.01
Adult Marijuana Use			0.00		0.00
Violent Deviance Wave 1	0.03**	0.03**	0.02*	0.02*	0.02*
Single-Parent Family [b]		-0.03	-0.03*	-0.04*	-0.04*
Blended Family [b]		0.01	0.01	0.01	0.01
Foster Family [b]		-0.08	-0.11	-0.09*	-0.11
Other Family [b]		0.09	0.08	0.08	0.08
Age		0.00	0.00	0.00	0.00
Black [c]		0.08*	0.09**	0.08*	0.09**
Hispanic [c]		0.03	0.03	0.02	0.02
Asian/Pacific Islander [c]		0.02	0.02	0.02	0.02
Native American [c]		-0.05**	-0.05**	-0.06**	-0.06**
Other Race [c]		-0.01	-0.01	-0.01	-0.01
Constant	0.02*	0.00	-0.12	0.05	-0.05
R^2	0.03	0.05	0.06	0.06	0.07

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

their violent deviant behavior over the life course significantly greater than those who did not acquire an adolescent tattoo, while no such effects were found for males. The effects of adolescent tattoos on females in the presence of social bonds have less of an effect, but indicate females tattooed in adolescence still significantly increase violent deviant behavior dissimilarly to females not tattooed in adolescence. Conversely, tattoos effect, but indicate females tattooed in adolescence still significantly increase violent

acquired by males in adolescence did not have any significant effects on longitudinal changes in deviant behavior. When concurrently controlling for substance use, self-control, demographics, family background, and social controls, tattooing had no effect on male violent deviance change over the life course, whereas adolescently tattooed females significantly increased the long-term level of their violent deviant participation compared to females not tattooed in adolescence. Support for hypothesis 2 in the context of violent deviant behavior is limited to the level of male participation, meaning that tattoo acquisition predicated changes in the level of female violent participation from Wave I to Wave IV at a significant level.

Nonviolent deviant behavior changes over the life course similarly for those tattooed in adolescence as those who were not, regardless of gender, as shown in Model 1 in Table 14 for males and Table 15 for females. Despite differences in demographics and family background in Model 2, adolescently tattooed and non-tattooed individuals change in nonviolent deviant behavior similarly. Controlling for substance use and self-control in Model 3 did not result in any significant effects of adolescent tattooing on changes in nonviolent deviant behavior for either males or females. Tattooed and non-tattooed individuals, regardless of gender, did not significantly differ in changes in nonviolent deviant participation over the life course, net of social controls. Simultaneously controlling for substance use, demographics, self-control, family background, and social controls, males and females similarly change in nonviolent deviant participation over the life course regardless of adolescent tattooed acquisition.

The change in deviant behavior from adolescence into adulthood was analyzed in

several different contexts to evaluate hypothesis 2. Neither adult males nor females tattooed in adolescence differed significantly from their non-adolescently-tattooed counterparts in general or nonviolent deviance when independently or concurrently controlling for social bonds, substance use, and self-control. However, females who were tattooed in adolescence significantly increase their violent deviant behavior over the life course when independently or concurrently controlling for all other variables

Table 14: Adolescently Tattooed Male Nonviolent Deviance Change Across the Life Course (By Wave IV) (N = 1,466)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed Adolescent (Wave I or Wave II)	-0.04	-0.02	-0.08	-0.04	-0.08
Ever Married				-0.14	-0.02
Education				-0.01	0.00
Ever in Military				0.00	0.06
Religiosity Wave 4				-0.08*	-0.01
Adult Self-Control			0.12**		0.12**
Adult Alcohol Use			0.04		0.04
Adult Marijuana Use			0.19***		0.19***
Nonviolent Deviance Wave 1	0.04***	0.04***	0.03**	0.04***	0.03**
Single-Parent Family [b]		-0.01	-0.11	-0.04	-0.11
Blended Family [b]		0.05	-0.01	0.03	-0.02
Foster Family [b]		-0.70***	-0.58***	-0.84***	-0.61***
Other Family [b]		0.08	-0.05	0.04	-0.05
Age		-0.04	-0.02	-0.02	-0.01
Black [c]		0.31**	0.40***	0.32**	0.40***
Hispanic [c]		-0.03	0.04	-0.03	0.04
Asian/Pacific Islander [c]		0.12	0.24	0.11	0.23
Native American [c]		-0.20*	-0.16	-0.20*	-0.16
Other Race [c]		-0.19	-0.07	-0.20	-0.07
Constant	0.26***	1.22	0.16	1.10	0.13
R^2	0.03	0.04	0.15	0.05	0.15

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

Table 15: Adolescently Tattooed Female Nonviolent Deviance Change Across the Life Course (By Wave IV) (N = 1,834)

	Model 1	Model 2	Model 3	Model 4	Model 5
Tattooed Adolescent (Wave I or Wave II)	0.07	0.10	0.08	0.07	0.06
Ever Married				-0.10**	-0.05
Education				-0.02*	-0.01
Ever in Military				-0.01	-0.04
Religiosity Wave 4				-0.03	-0.00
Adult Self-Control			0.09		0.08
Adult Alcohol Use			0.04		0.04
Adult Marijuana Use			0.10***		0.10***
Nonviolent Deviance Wave 1	0.03**	0.03**	0.02	0.03**	0.02
Single-Parent Family [b]		0.01	-0.01	-0.00	-0.02
Blended Family [b]		0.10	0.10	0.09	0.09
Foster Family [b]		-0.10	-0.28	-0.09	-0.27
Other Family [b]		0.09	0.03	0.07	0.02
Age		-0.04*	-0.03	-0.03*	-0.03
Black [c]		0.00	0.02	-0.01	0.01
Hispanic [c]		0.05	0.07	0.05	0.06
Asian/Pacific Islander [c]		-0.14**	-0.11*	-0.14**	-0.12*
Native American [c]		0.24	0.18	0.21	0.17
Other Race [c]		-0.07	-0.07	-0.04	-0.06
Constant	0.07*	1.08*	0.59	1.08*	0.65
R^2	0.02	0.03	0.08	0.04	0.09

*** p<0.001, ** p<0.01, * p<0.05 (two-tailed)
Reference Groups: [a] Non-tattooed; [b] White; [c] Two Biological Parents

(p<.05), but no such relationship exists for males. Changes in male deviant behavior of any type occur at similar rates over the life course, regardless of tattoo acquisition. Changes in deviant behavior over the life course are largely similar among tattooed and non-tattooed females with the exception of increasing violent deviant behavior among females who were tattooed during adolescence. Regarding males, the null hypothesis that tattoo acquisition in adolescence has an impact on changes in deviant behavior over

the life course, is rejected. Therefore, because males' deviant behavior changes similarly over the life course regardless of tattoo acquisition, support was found for hypothesis 2, that "Tattoo acquisition in adolescence is *not* associated with significant changes in deviant behavior over the life course." However, the finding that over the life course, tattooed female's violent deviant behavior increases significantly more than females not tattooed in adolescence indicates only partially support for hypothesis 2, exclusive to nonviolent deviant behavior. The findings regarding female tattoo acquisition in adolescence and its relationship to violent deviant behavior fail to reject the null hypothesis.

CONCLUSIONS

The Western association of tattoos with deviance has fluctuated for centuries but consistently been related to others perceptions. They have been linked with savages, noble natives, carnival and freak shows, aristocratic symbolism, patriotic representation, outlaw allegory, and artistic expression. The tattoo renaissance is not limited to the United States with tattoo popularity flourishing in many parts of the world among the mainstream public. Mass tattooing over the past few decades has produced a large population of tattooed individuals. Despite industry growth, tattooing has struggled to shake past deviant associations (Adams 2012), particularly those most recently associated with biker outlaws, street gangs, prison, and deviants. However, with nearly 40% of the U.S. population under 40 reporting at least one tattoo (Taylor and Keeter 2010), these stigmas are largely perpetuated by older generations (Rooks, Roberts, and Scheltema 2000; Gardyn and Whelan 2001). This study aims to provide greater luminance of tattooed individual's relationship with deviant behavior by measuring immediate (12 months) and life course (10 to 15 years) changes in deviant behavior participation after tattoo acquisition.

Past research on tattoos has found varying associations with substance use, sexual proclivities, and deviant behavior in general (Koch et al. 2010, 2005; Nowosielski et al. 2012 to name a few). Some have even suggested using adolescent tattoo acquisition as a warning sign to label adolescents who are at-risk of further "risky" behavior (Carroll, Riffenburgh, Roberts, and Myhre 2002; Roberts and Ryan 2002). This research (and others like it) suggests that becoming tattooed may increase

individual's propensity for deviant behavior participation. However, tattoos are symbols that are important in several identity processes aimed to control other's perceptions to secure identity verification. This suggests, along with the increasing popularity of tattoos, that tattoo acquisition is not necessarily a signifier of deviance and therefore does not indicate a proclivity for engaging in deviant behavior.

Demonstrated earlier, tattooed adolescents display deviant behavior at different levels than their non-tattooed counterparts and both tattooed and non-tattooed adolescents significantly change their deviant behavior between waves. Does getting a tattoo have an impact on that change in deviant behavior significant enough to differentiate the tattooed from the non-tattooed? The first hypothesis evaluates changes in deviant behavior after the acquisition of a tattoo compared to non-tattooed adolescents. The widespread mainstream acceptance of tattoos since the tattoo renaissance suggests in hypothesis 1 that adolescents acquiring a tattoo will change similarly to non-tattooed adolescents in the level of their deviant participation. Results indicate that following tattoo acquisition, tattooed adolescents change their participation in violent, nonviolent, and general deviant behavior from Wave I to II similarly to their non-tattooed counterparts. The effects are observed for males and females, net of demographics, family background, social bonds, substance use, self-control, and structural strains.

The data used in this analysis was collected in the mid-1990s when the popularity and acceptance of tattoos was beginning to explode. Accordingly, an increase in the popularity of an act decreases the extent to which that act is considered deviant.

Additionally, the effects of labeling and identity change are not necessarily instant, but often times occur over an extended period of time (though not always). If the increased popularity of tattoos has reduced the extent to which a tattooed individual is considered deviant, there may be no unintended long-term effects on the individual's identity and therefore no effect on their deviant behavior. Life course theory suggests that increased deviance in later adolescence is a typical trend, but that most desist in their late 20s or early 30s. For this reason, hypothesis 2 evaluates the role adolescent tattoo acquisition plays in the change to deviant behavior from Wave I to Wave IV.

The effects of labeling an adolescent with a tattoo as deviant may not be immediately clear, but developed over a longer period of time. The initial labeling of an individual may not have an immediate effect of their identity, but rather it may cause the identity to be slowly altered over time. These changes may not be recognizable when evaluating the identity over the course of 12 months, or even yearly, but when comparing one's behavior over a 10-15 year period, these changes may become increasingly clear. Hypothesis 2 tests this possibility by analyzing the impact of adolescent tattoo acquisition on changes in deviant behavior participation from adolescence into adulthood, incorporating measures of adult self-control, substance use, social bonds, and adolescent family composition. Results of the analysis indicate that females who acquire a tattoo early in life show significant increases in violent deviant behavior from Wave I to IV. This finding among female life course deviance is exclusive to violent behavior as there was no impact of adolescent tattoo acquisition on nonviolent deviant behavior or when using the full deviance scale. Additionally,

adolescent tattoo acquisition had no effect on male deviance of any type over the life course. Because of these results hypothesis 2 is only partially supported.

Tattooing has traditionally been associated with masculinity and deviance is more common among males. A reduction in the perception of tattoos as deviant has increased their acceptance among males to the extent that tattoo acquisition may even be considered a social norm, therefore, having no effect on male deviant behavior. However, because tattoos on females had traditionally been associated with even greater deviance than in males, a reduction in the deviant perception of tattoos has not had the same effect on females as it has on males, meaning while females may be less ostracized for a tattoo than in the past, they still experience some level of stigmatization from becoming tattooed. Comfort with current peer associations affords female adolescents the freedom to acquire a tattoo without many initial social repercussions or much thought to social threats, such a stigmatization in adulthood. This may cause a delay in stigmatization until emerging adulthood when peer associations typically change.

Once stigmatized, the female identity standard may no longer be congruent with reflected appraisals requiring adjustments in behavior to achieve identity verification. Perhaps it is violent behavior instead of nonviolent behavior that increases because tattoos can convey a certain level of toughness. When females continuously receive reflected appraisals of toughness that are incongruent to their current identity standard, they experience distress and must change their behavior to achieve identity verification. To bring congruence between the reflected appraisals of toughness and the current identity standard, females may increase violent behavior to reaffirm the perception of

toughness. Lastly, the finding that adolescent tattoo acquisition had no significant effect on female life course deviance using the full deviance scale suggests that the effects of tattoo acquisition on female violent deviant behavior are weak, but warrant additional research.

The findings outlined in this research enhance understanding of the relationship between tattoos and deviance, providing substantial evidence for the standpoint that widespread acceptance and popularity of tattooing among the mainstream population of the United States has largely diminished the deviant stigma associated with becoming tattooed.

Several limitations should be noted with this study. First, the size, location and symbolic representation of the respondent's tattoo could not be assessed. Visibility of tattoos was related to an increase in a variety of deviant behaviors (Adams 2009). Second, while this study addresses the effects of tattoos acquired as adolescents, data is not provided on tattoo acquisition as young adults. Therefore, not acquiring a tattoo as an adolescent does not mean he or she did not acquire one during the college years. This information could provide a more accurate representation of tattooed individuals. Lastly, motivations for tattoo acquisition may be related to subsequent deviant behavior. An individual with his or her children's names tattooed on the shoulder may be perceived to be less deviant than an individual with a skull and crossbones tattooed on the skull. Unfortunately, the data used for this research did not provide the necessary information required for such an analysis.

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APPENDIX A

ITEMS USED IN WAVE I AND WAVE II DEVIANCE SCALES

Wave I (1994-95) and Wave II (1996)
In the past 12 months:
1. How often did you paint graffiti or signs on someone else's property or in a public place?
2. Did you deliberately damage property that didn't belong to you?
3. Did you lie to your parents or guardians about where you had been or whom you were with?
4. Did you take something from a store without paying for it?
5. Did you run away from home?
6. Did you drive a car without its owner's permission?
7. Did you steal something worth more than $50?
8. Did you go into a house or building to steal something?
9. Did you sell marijuana or other drugs?
10. Did you steal something less than $50.00?
11. Were you loud, rowdy, or unruly in a public place?
12. Did you get into a serious physical fight?
13. Did you hurt someone badly enough to need bandages or care from a doctor or nurse?
14. Did you use or threaten to use a weapon to get something from someone?
15. Did you take part in a fight where a group of your friends was against another group?

APPENDIX B

ITEMS USED IN WAVE IV DEVIANCE SCALES

Wave IV (2008-09)
In the past 12 months:
1. Did you deliberately damage property that didn't belong to you?
2. Did you use someone else's credit card, bank card, or automatic teller card without their permission or knowledge?
3. Did you steal something worth more than $50?
4. Did you buy, sell, or hold stolen property?
5. Did you go into a house or building to steal something?
6. Did you sell marijuana or other drugs?
7. Did you steal something less than $50.00?
8. Did you get into a serious physical fight?
9. Did you hurt someone badly enough to need bandages or care from a doctor or nurse?
10. Did you use or threaten to use a weapon to get something from someone?
11. Did you take part in a fight where a group of your friends was against another group?

APPENDIX C

HYPOTHESIS 1 SUBPOPULATION DESCRIPTIVE STATISTICS

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,809			N=2,006	
Full Deviance Wave I: Audio-CASI: Scale created from 15 items with at least 8 nonmissing response to measure Wave 1 deviance, then multiplied by 15 to convert back to the original metric.	4.93	5.68	0-45	3.39	4.35	0-34
Violent Deviance Wave I: Audio-CASI: Scale created from items 12-15 of the Wave 1 full deviance scale with at least 2 nonmissing responses to measure violent deviant behavior. The scales was then multiplied by 4 to convert back to the original metric.	1.41	1.94	0-12	0.68	1.35	0-9
Nonviolent Deviance Wave I: Audio-CASI: Scale created from items 1-11 of the Wave 1 full deviance scale with at least 6 nonmissing responses to measure nonviolent deviant behavior. The scales was then multiplied by 11 to convert back to the original metric.	3.51	4.38	0-33	2.71	3.57	0-26
Full Deviance Wave II: Audio-CASI: Scale created from 15 items with at least 8 nonmissing response to measure Wave 2 deviance, then multiplied by 15 to convert the scale back to the original metric.	3.68	4.86	0-45	2.81	3.75	0-41

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,809			N=2,006	
Violent Deviance Wave II: Audio-CASI: Scale created from items 12-15 of the Wave 2 full deviance scale to measure nonviolent deviant behavior with at least 2 nonmissing responses to measure violent deviant behavior. The scales was then multiplied by 4 to convert back to the original metric.	0.81	1.50	0-12	0.43	1.08	0-11
Nonviolent Deviance Wave II: Audio-CASI: Scale created from items 1-11 of the Wave 2 full deviance scale with at least 6 nonmissing responses to measure nonviolent deviant behavior. The scales was then multiplied by 11 to convert back to the original metric.	2.88	3.95	0-33	2.37	3.18	0-33
Tattooed at Wave I: Dichotomous variable measuring whether the respondent had acquired a tattoo by Wave I.	0.04	0.18	0-1	0.02	0.15	0-1
Age at Wave I: Continuous variable constructed from subtracting the respondents birthday from the interview date in Wave IV.	15.46	1.51	11-21	15.30	1.52	11-20
2-Parent Biological Family: Dichotomous variable indicating the resident parents are biologically related to the respondent.	0.57	0.48	0-1	0.56	0.51	0-1

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,809			N=2,006	
Single-Parent Family: Dichotomous variable indicating the resident parent is a single father or mother with no partner.	0.28	0.43	0-1	0.28	0.46	0-1
Blended Family: Dichotomous variable indicating one of the resident parents is not biologically related to the respondent – includes adoptive parents.	0.12	0.31	0-1	0.12	0.33	0-1
Foster Family: Dichotomous variable indicating the resident parent is a foster parent and includes married or single parents.	0.00	0.03	0-1	0.00	0.05	0-1
Other Family: Dichotomous variable indicating the resident parent(s) do not fit into any of the previously listed categories.	0.03	0.17	0-1	0.04	0.19	0-1
Hispanic Dummy variables using self-reported data to construct race, coded in the priority of this list to account for underrepresented groups.	0.11	0.30	0-1	0.11	0.33	0-1
Black	0.14	0.33	0-1	0.15	0.37	0-1
Asian/Pacific Islander	0.03	0.16	0-1	0.02	0.16	0-1
Native American	0.03	0.16	0-1	0.02	0.14	0-1
Other Race	0.01	0.08	0-1	0.01	0.10	0-1
White	0.69	0.45	0-1	0.68	0.48	0-1

	Male Mean	Male SD N=1,809	Male Range	Female Mean	Female SD N=2,006	Female Range
Adolescent Self-Control: Scale created from four measures of impulsivity collected in Wave I, 1 = low self-control and 5 = high self-control	2.19	0.63	1-4.8	2.25	0.65	1-5
Parents Education: Ordinal variable indicating the highest level of parental education – two parent families used the highest education between the parents	6.32	2.04	1-9	6.24	2.20	1-9
Parental Attachment: Scale measuring parental attachment through satisfaction with communication and closeness to each parent, 1 = low, 5 = high	4.21	0.57	1.5-5	4.10	0.69	1.5-5
College Aspirations: Scale constructed from desire and likelihood of attending college, 1 = low, 5 = high	4.23	0.99	1-5	4.45	0.89	1-5
School Achievement: Scale created using a 4-point grade average in English, Math, Science, and History for at least 2 nonmissing responses, 4 = A average	2.71	0.74	1-4	2.98	0.74	1-4
Religiosity Wave 1: Scale measuring religious participation in the past 12 months, 0 = never	1.69	1.18	0-3	1.82	1.23	0-3

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,809			N=2,006	
Adolescent Alcohol Use: Scale constructed from 3 items with at least 2 nonmissing responses in Wave I measuring the frequency and amount of alcohol consumption over the previous 12 months	0.75	1.21	0-6	0.60	1.06	0-6
Adolescent Marijuana Use: Continuous measurement of the number of times in the past 30 days the respondent used marijuana at Wave I	3.12	31.00	0-800	0.85	5.10	0-100

APPENDIX D

HYPOTHESIS 2 SUBPOPULATION DESCRIPTIVE STATISTICS

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,466			N=1,834	
Full Deviance Wave I: Audio-CASI: Scale created from 15 items with at least 8 nonmissing response to measure Wave 1 deviance, then multiplied by 15 to convert back to the original metric.	5.08	5.68	0-45	3.50	4.62	0-34
Violent Deviance Wave I: Audio-CASI: Scale created from items 12-15 of the Wave 1 full deviance scale with at least 2 nonmissing responses to measure violent deviant behavior. The scales was then multiplied by 4 to convert back to the original metric.	1.39	1.88	0-12	0.71	1.44	0-9
Nonviolent Deviance Wave I: Audio-CASI: Scale created from items 1-11 of the Wave 1 full deviance scale with at least 6 nonmissing responses to measure nonviolent deviant behavior. The scales was then multiplied by 11 to convert back to the original metric.	3.69	4.41	0-33	2.79	3.76	0-26
Full Deviance Wave IV: Audio-CASI: Scale created from 11 items with at least 6 nonmissing response to measure Wave 4 deviance, then multiplied by 11 to convert the scale back to the original metric.	0.63	1.48	0-16	0.20	0.88	0-13

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,466			N=1,834	
Violent Deviance Wave IV: Audio-CASI: Scale created from items 8-11 of the Wave 4 full deviance scale with at least 2 nonmissing responses to measure violent deviant behavior. The scales was then multiplied by 4 to convert back to the original metric.	0.22	0.76	0-10	0.05	0.31	0-5
Nonviolent Deviance Wave IV: Audio-CASI: Scale created from items 1-7 of the Wave 1 full deviance scale with at least 4 nonmissing responses to measure nonviolent deviant behavior. The scales was then multiplied by 7 to convert back to the original metric.	0.41	1.11	0-16	0.15	0.79	0-12
Adolescently Tattooed: Dichotomous variable measuring whether the respondent ever acquired a tattoo during adolescence (at Wave I or Wave II).	0.07	0.24	0-1	0.05	0.23	0-1
Age at Wave IV: Continuous variable constructed from subtracting the respondents birthday from the interview date in Wave IV.	28.50	1.55	25-34	28.32	1.65	25-34
2-Parent Biological Family: Dichotomous variable indicating the resident parents are biologically related to the respondent.	0.57	0.47	0-1	0.57	0.52	0-1

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,466			N=1,834	
Single-Parent Family: Dichotomous variable indicating the resident parent is a single father or mother with no partner.	0.27	0.42	0-1	0.27	0.47	0-1
Blended Family: Dichotomous variable indicating one of the resident parents is not biologically related to the respondent – includes adoptive parents.	0.12	0.31	0-1	0.11	0.33	0-1
Foster Family: Dichotomous variable indicating the resident parent is a foster parent and includes married or single parents.	0.00	0.03	0-1	0.00	0.03	0-1
Other Family: Dichotomous variable indicating the resident parent(s) do not fit into any of the previously listed categories.	0.04	0.18	0-1	0.05	0.22	0-1
Hispanic Dummy variables using self-reported data to construct race, coded in the priority of this list to account for underrepresented groups.	0.11	0.30	0-1	0.11	0.33	0-1
Black	0.15	0.34	0-1	0.16	0.39	0-1
Asian/Pacific Islander	0.03	0.15	0-1	0.03	0.19	0-1
Native American	0.03	0.16	0-1	0.02	0.15	0-1
Other Race	0.01	0.08	0-1	0.01	0.10	0-1
White	0.67	0.44	0-1	0.67	0.49	0-1

	Male Mean	Male SD	Male Range	Female Mean	Female SD	Female Range
		N=1,466			N=1,834	
Adult Self-Control: Scale constructed from 3 measures of adult impulsivity	2.67	0.68	1-5	2.39	0.68	1-5
Ever Married: Dichotomous variable indicating the respondent was ever married 1=yes	0.42	0.47	0-1	0.53	0.53	0-1
Ever in Military: Dichotomous variable indicating the respondent was ever a member of the military, 1=yes	0.10	0.28	0-1	0.02	0.14	0-1
Education: Respondent's level of achieved education at Wave IV, 1=8th grade or less, 13= doctorate	5.41	2.21	1-13	6.05	2.55	1-13
Religiosity Wave 4: Scale measuring religious participation in the past 12 months, 0 = never	1.06	0.96	0-3	1.31	1.13	0-3
Adult Alcohol Use: Scale constructed from 3 items with at least 2 nonmissing responses measuring frequency and amount of alcohol consumed over the previous 12 months	1.93	1.45	0-6	1.24	1.33	0-6
Adult Marijuana Use: Scale measuring marijuana use in the past 30 days, 0 = never; 6=every day or almost every day	0.88	1.80	0-7	0.46	1.47	0-7